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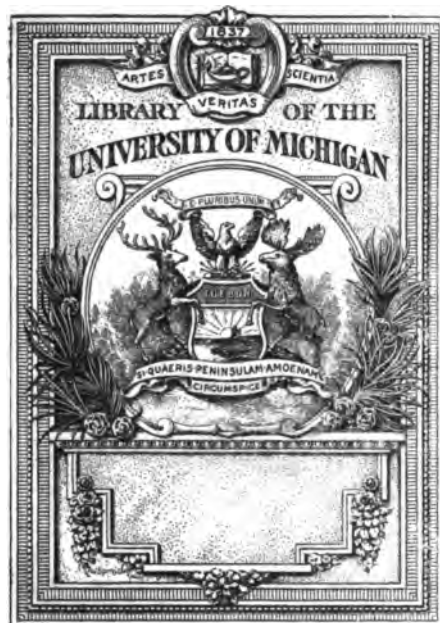
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U. S. DEPARTMENT OF AGRICULTURE,

U. S. WEATHER BUREAU.

BULLETIN K.

1501

STORMS OF THE GREAT LAKES.

122570

BY

E. B. GARRIOTT,

PROFESSOR OF METEOROLOGY.

Prepared under direction of WILLIS L. MOORE, Chief U. S. Weather Bureau.



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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,
Washington, D. C., October 20, 1902.

HON. JAMES WILSON,

Secretary of Agriculture, Washington, D. C.

SIR: I have the honor to transmit herewith a paper by Prof. Edward B. Garriott entitled Storms of the Great Lakes.

This paper presents 952 charts that describe graphically 238 of the more important storms that visited the Great Lakes during the 25-year period 1876 to 1900.

The purpose of the compilation is to furnish observers of the Weather Bureau and shipmasters a handy reference which will aid them to recognize on the daily weather maps the general atmospheric conditions that attend the approach of lake storms.

I recommend the publication of this paper as a bulletin of the Weather Bureau.

Very respectfully,

WILLIS L. MOORE,
Chief U. S. Weather Bureau.

Approved:

J. H. BRIGHAM,
Acting Secretary.

STORMS OF THE GREAT LAKES.

The accompanying charts present graphically the more important storms of the Great Lakes that have been described in the Monthly Weather Review during the 25-year period 1876 to 1900, inclusive. Each storm is illustrated by four charts that cover thirty-two to forty-eight hours of its history, and as a rule at least two of the charts present general meteorological conditions that obtained over the United States and Canada at observations taken eight to twenty-four hours before the storm center reached the Lake region.

The standard of intensity observed in selecting the storms varies with the seasons; the object has been simply to present typical lake storms of the various months that have been of sufficient strength to endanger shipping. A classification of these storms with regard to types and a study of the characteristics and relative seasonal frequency of the several types will, it is believed, be of interest and value to all persons interested in lake navigation, and the official forecaster will find that the charts present a record for ready reference that can be used to advantage in his daily work. As a means of classifying the storms the pages containing the charts can be rearranged and storms of similar types grouped; or the charts can be pasted on card board, cut to a corresponding size, and filed in the form of a card index.

SEASONAL FREQUENCY OF LAKE STORMS.

November, with a total of 45 severe storms in twenty-five years, is the month of greatest storm frequency on the Great Lakes. October, November, and December have each an average of more than one and less than two severe storms. Next in order come September and March, with 23 and 22 storms, respectively. In June and August severe storms occur about once in three years and in July about once in four years. It appears from these figures that as the season of navigation approaches its close the storms increase in number and also, as a rule, in severity, and that, as a forecasting feature, the severe straight gales of summer are an almost negligible quantity.

TYPES AND INTENSITY OF LAKE STORMS—SOUTHWEST STORMS.

The most destructive storms of the Great Lakes come from the Southwest. As a rule storms of this class first appear in the region that embraces the southeast slope of the Rocky Mountains, the Rio Grande Valley, the coast districts of northeastern Mexico, and the west part of the Gulf of Mexico. They appear at times to have their origin in an atmospheric eddy that is formed over the region referred to by the meeting of warm, moist winds from the Gulf of Mexico and cold north to northwest winds that blow down the eastern slope of the Rocky Mountains. In some instances storms that appear on the southeastern slope of the Rocky Mountains are clearly secondary developments to areas of low barometric pressure that are moving eastward in northern latitudes. In the late summer and early autumn months storms from the west part of the Gulf of Mexico are sometimes of West Indian origin. Occasionally storms advance from the southern California coast over the southern Rocky Mountains and the Rio Grande Valley, and it is believed that they sometimes pursue a more southerly course from the Mexican Pacific coast to the Rio Grande Valley. The season of southwest storms extends from October to May; those that advance from that region during the warmer months are usually of tropical origin. The approach of storms of the southwest type is generally indicated in the Lake region twelve to twenty-four hours in advance of their arrival by falling barometer and east to northeast winds. As the storm center approaches the middle Mississippi or Ohio rivers the barometer falls rapidly and the wind gradually increases to gale force. Following the passage of the storm center the wind shifts suddenly to northwest and the barometer rises

rapidly. The gales that attend these storms are particularly dangerous on the United States side of the Great Lakes where they come as onshore winds, and in the winter months the danger is frequently added to by heavy falls of snow and subsequent intense cold.

STORMS FROM THE MIDDLE-WEST.

Next in order as regards severity are storms that advance from the States of the lower Missouri Valley over the Great Lakes. These storms first appear on the middle-eastern slope of the Rocky Mountains and move north of east, or swing southeastward from the Northwestern States or the north Pacific coast and recurve east and north of east over the lower Missouri Valley or the States of the middle-west. They frequently develop dangerous strength while crossing the lower Missouri or upper Mississippi valleys, and this is especially true of storms that advance from the Northwest, recurve north of east over Iowa, and pass thence over the Lake region. At times this development is so sudden that alertness on the part of the forecaster to detect the conditions favorable to an increase in intensity and promptness to act on the part of that official is necessary to forewarn lake interests of their approach. Storms of this class are also attended during the colder months by snow but the snowfalls are not, as a rule, so heavy as those that attend storms from the Southwest. The approach of storms from the lower Missouri Valley and the middle-west is generally indicated at points on the Great Lakes twelve to twenty-four hours before gales begin by east to southeast winds, falling barometer, fleecy upper clouds moving from a westerly direction that gradually become obscured by lower clouds that move, with increasing velocity, first from the south and later from the east quadrants. When the barometer begins to fall rapidly and the wind freshens and shifts to easterly points no time should be lost in seeking shelter by vessels that are liable to be damaged by easterly gales. Following the passage of the center of a storm of this class the barometer rises and the wind shifts suddenly to northwest and gradually diminishes in force with clearing weather. In winter, however, light snow will sometimes continue several hours after the center of the storm has passed to the eastward. This is particularly true in cases where the passage of the storm center is followed by a cold wave. While storms from the middle-west are common to all seasons of the year the severer types of this class that endanger lake shipping are confined principally to the colder months.

NORTHWEST STORMS.

The class to which the greater number of lake storms belong includes all disturbances that move from the northeast Rocky Mountain slope and the British Northwest Territory almost directly toward the upper lakes. During the colder months many of these storms advance from the North Pacific Ocean. Disturbances of the northwest type are seldom very severe or destructive over the Lake region. They are preceded in all seasons by falling barometer and southerly winds that set in twenty-four hours or more before the storm center reaches the lakes. The force of the south to southwest winds that attend the approach of a storm from the Northwest depends upon the depth of the barometric depression and the gradient it presents. On the United States side of the Great Lakes, with the exception of Lake Michigan, they are, however, offshore winds. Following the passage of the center of a northwest storm the wind at points on the Great Lakes shifts to west and northwest and diminishes in force and the barometer rises rapidly. In winter the precipitation that attends storms of this class is generally light, and heavy snow seldom, if ever, falls south of the track of the storm center. In summer the rain that falls usually comes in the form of thunderstorms and the high winds in squalls from the Southwest at the time the center of the storm is passing.

STORMS OF TROPICAL ORIGIN.

Some of the severest storms of the Great Lakes have been of tropical origin. Fortunately this class of storms has been of exceedingly rare occurrence, and when they have occurred their advance

from the Gulf of Mexico or the south Atlantic coast of the United States has been abundantly indicated by the general meteorological conditions that have attended and preceded their advance.

The following table shows the dates of storms that are illustrated on the charts herewith. As previously stated these storms, as a rule, receive special mention in the Monthly Weather Review, and are considered typical storms of the various classified types. The Wind Barometer Table for the Great Lakes was prepared by the writer a number of years ago. The Table of Maximum Wind Velocities is from the Meteorological Chart of the Great Lakes and gives, by months, the highest wind velocities ever recorded during the season of navigation at the various Weather Bureau stations of the Great Lakes.

January, 1876.....	8-9	March, 1890.....	26-28	May, 1898.....	17-19
1880.....	21-22	1891.....	2-4		
1881.....	20-21	1893.....	10-11	Total number	15
1882.....	25-26	1894.....	10-11		
1883.....	19-20	1895.....	3-4	June, 1876.....	16-17
1884.....	1-2	1896.....	27-29	1877.....	8-9
1885.....	5-6	1897.....	8-9	1878.....	19-20
1885.....	10-11	1897.....	10-11	1880.....	5-6
1885.....	15-16	1897.....	18-19	1882.....	2-3
1886.....	3-4	1898.....	21-22	1882.....	17-18
1887.....	16-17	1898.....	26-27	1892.....	22-23
1889.....	8-9			1893.....	20-21
1890.....	12-13	Total number	22	1897.....	1-2
1893.....	8-9			Total number	9
1895.....	20-21	April, 1876.....	4-5		
1895.....	25-26	1878.....	9-10	July, 1876.....	4-5
Total number	16	1879.....	1-2	1878.....	24-26
		1879.....	9-10	1885.....	15-17
February, 1876.....	1	1880.....	18-19	1891.....	15-17
1878.....	21-22	1883.....	9-10	1897.....	20-21
1880.....	11-12	1884.....	14-15	1898.....	18-19
1881.....	9-10	1884.....	27-28		
1881.....	11-12	1886.....	6-7	Total number	6
1884.....	18-19	1887.....	3-4		
1885.....	9-10	1887.....	17-18	August, 1878.....	12-14
1887.....	25-26	1887.....	22-23	1883.....	21-22
1888.....	23-24	1890.....	8-9	1885.....	1-3
1889.....	3-4	1893.....	19-20	1885.....	20-21
1892.....	6-7	1897.....	17-19	1889.....	19-21
1893.....	1-2	1898.....	12-13	1891.....	16-17
1893.....	27-28	Total number	16	1892.....	29-30
1898.....	18-19			1893.....	28-29
Total number	14	May, 1876.....	2-3	Total number	8
		1878.....	19-20		
March, 1876.....	15-16	1884.....	1-2	September, 1876.....	17-18
1876.....	24-25	1887.....	1-2	1878.....	12-13
1877.....	1-2	1889.....	26-27	1878.....	19-20
1878.....	2-3	1890.....	9-10	1879.....	2-3
1880.....	4-5	1890.....	15-16	1880.....	19-20
1880.....	26-27	1892.....	2-3	1880.....	27-28
1881.....	18-19	1892.....	18-19	1881.....	9-10
1882.....	8-9	1893.....	14-15	1881.....	28-29
1882.....	20-21	1894.....	16-17	1882.....	13-14
1884.....	10-11	1896.....	16-17	1883.....	23-24
1885.....	13-14	1896.....	24-25	1884.....	23-24
		1896.....	26-27		

September, 1885.....	7-8	October, 1898.....	24-25	November, 1898.....	21-22
1888.....	25-26			1900.....	12-13
1889.....	18-19	Total number	29	1900.....	18-19
1891.....	14-15			1900.....	20-21
1891.....	27-28	November, 1876.....	1-2		
1892.....	13-14	1877.....	1-2	Total number	45
1894.....	21-22	1877.....	7-8		
1895.....	27-28	1878.....	5-7	December, 1876.....	7-9
1896.....	29-30	1879.....	1-2	1876.....	28-29
1899.....	23-24	1879.....	18-20	1877.....	4-5
1899.....	27-28	1879.....	27-28	1878.....	9-10
1900.....	10-11	1880.....	5-7	1878.....	20-21
		1880.....	19-20	1879.....	9-10
Total number	23	1881.....	11-12	1879.....	21-22
		1881.....	18-19	1880.....	4-5
October, 1876.....	12-14	1882.....	27-29	1883.....	23-24
1877.....	2-4	1883.....	10-11	1883.....	26-27
1878.....	8-9	1883.....	25-26	1884.....	5-6
1879.....	21-23	1884.....	3-8	1884.....	14-15
1879.....	28-29	1884.....	22-23	1884.....	21-22
1880.....	15-17	1885.....	6-7	1885.....	3-4
1881.....	11-12	1885.....	11-12	1885.....	8-9
1881.....	14-15	1886.....	16-18	1886.....	1-2
1882.....	8-9	1886.....	22-23	1886.....	3-4
1883.....	12-14	1887.....	18-19	1888.....	4-5
1883.....	28-29	1889.....	26-27	1888.....	24-25
1884.....	7-8	1891.....	10-11	1890.....	10-11
1884.....	20-21	1891.....	15-16	1890.....	27-29
1884.....	23-25	1891.....	20-21	1891.....	3-4
1885.....	28-29	1891.....	25-26	1892.....	7-8
1886.....	13-14	1892.....	6-7	1892.....	12-13
1887.....	1-3	1892.....	16-17	1892.....	14-15
1887.....	22-24	1893.....	21-22	1893.....	9-10
1889.....	4-5	1894.....	1-2	1894.....	11-12
1890.....	12-13	1894.....	8-10	1894.....	24-25
1891.....	24-26	1894.....	25-26	1895.....	29-30
1891.....	30-31	1895.....	24-26	1896.....	12-13
1892.....	27-29	1896.....	2-3	1896.....	3-5
1893.....	13-14	1896.....	4-5	1898.....	10-12
1894.....	28-29	1897.....	4-5	1899.....	3-4
1894.....	30-31	1897.....	8-9	1900.....	7-8
1896.....	29-31	1897.....	10-11	1900.....	22-23
1898.....	17-18	1898.....	1-2		
		1898.....	4-5	Total number	35
		1898.....	7-8		

Summary of the number of severe storms that visited the Great Lakes from 1876 to 1900, inclusive:

Month.	Number of storms.	Month.	Number of storms.
January.....	16	August.....	8
February.....	14	September.....	23
March.....	22	October.....	29
April.....	16	November.....	45
May.....	15	December.....	35
June.....	9		
July.....	6	Total.....	238

WIND BAROMETER TABLE FOR THE GREAT LAKES.

Height of barometer (lake level).	Direction of wind.	Character of weather and wind indicated.
29.40 to 29.60, and steady.....	West.....	Fair, slight changes in temperature, gentle to fresh winds.
29.40 to 29.60, rising.....	West.....	Fair, cooler, fresh west to northwest winds.
29.40 to 29.60, falling.....	South.....	Warmer, increasing southerly winds.
29.60, or above, falling rapidly.....	East to south.....	Warmer, rain or snow within 36 hours, increasing east to southeast winds.
29.60, or above, rising rapidly.....	West to north.....	Cool and clear, quickly followed by warmer, variable winds.
29.60, or above, steady.....	Variable.....	No immediate change, but winds will go to south inside of 36 hours.
29.40, or below, falling slowly.....	South to east.....	Rain or snow, increasing easterly winds.
29.40, or below, falling rapidly.....	South to east.....	Rain or snow, high easterly winds, followed within 48 hours by clearing, cooler, west to northwest winds.
29.40, or below, rising slowly.....	South to west.....	Clearing, cooler, fresh to brisk west to northwest winds.
29.20, or below, falling rapidly.....	South to east.....	Severe storm of wind and rain, and wind shifting to northwest within 36 hours.
29.20, or below, falling rapidly.....	East to north.....	Severe northeaster, with heavy rain or snow, and winds backing to northwest.
29.20, or below, rising rapidly.....	Going to west.....	Clearing and cooler, probably cold wave in winter.

MAXIMUM WIND VELOCITIES IN THE LAKE REGION.

(From Meteorological Chart of the Great Lakes.)

Stations.	April.				May.				June.				July.				August.			
	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.
Lake Superior :																				
Duluth	58	ne.	1883	22	60	ne.	1877	20	48	sw.	1880	24	48	nw.	1897	2	50	nw.	1897	8
Marquette	49	w.	1891	30	52	se.	1896	25	45	se.	1899	13	68	sw.	1901	20	48	sw.	1890	2
Sault Ste. Marie	60	se.	1893	20	50	se.	1892	18	45	nw.	1898	1	42	nw.	1898	28	50	nw.	1897	29
Lake Michigan :																				
Mackinaw City	46	se.	1887	12	52	e.	1883	10	47	se.	1887	17	37	sw.	1887	30	38	sw.	1883	20
Escanaba	48	n.	1878*	10	38	n.	1879*	25	40	s.	1876	17	37	nw.	1901	20	44	n.	1875	20
Green Bay	48	w.	1892	2	48	n.	1894	18	41	sw.	1901	28	48	sw.	1898	19	42	sw.	1888	8
Milwaukee	54	sw.	1878	10	49	se.	1896	25	60	sw.	1880	4	60	sw.	1874	24	52	w.	1896	9
Chicago	72	ne.	1893	20	62	e.	1894	18	72	nw.	1892	13	72	w.	1897	5	72	sw.	1898	16
Grand Haven	44	nw.	1882	19	42	w.	1898	19	48	nw.	1879	27	48	sw.	1895	16	48	nw.	1896	10
Lake Huron :																				
Alpena	49	nw.	1898	4	43	sw.	1896	17	48	w.	1881	13	60	sw.	1875	15	41	nw.	1901	29
Port Huron	60	sw.	1893	18	54	sw.	1896	17	52	w.	1898	12	56	n.	1879	11	52	n.	1896	8
Lake Erie :																				
Detroit	72	ne.	1893	20	74	sw.	1893	23	60	nw.	1890	17	54	n.	1893	7	37	nw.	1896	11
Toledo	60	w.	1892	5	52	e.	1882	6	50	w.	1888	13	49	nw.	1892	24	45	ne.	1875	1
Sandusky	52	nw.	1880	19	46	nw.	1878	10	57	nw.	1882	29	69	n.	1879	11	63	ne.	1885	9
Cleveland	60	n.	1901	20	60	sw.	1893	23	60	nw.	1898	12	66	w.	1896	26	58	nw.	1896	10
Erie	60	se.	1894	10	60	s.	1875	...	40	w.	1899	7	56	w.	1876	...	40	w.	1895	28
Buffalo	57	sw.	1897	20	58	sw.	1884	2	56	sw.	1893	11	60	sw.	1876	5	51	w.	1898	3
Lake Ontario :																				
Rochester	62	w.	1892	13	60	w.	1884	2	44	w.	1888	6	52	nw.	1888	11	48	ne.	1893	29
Oswego	54	se.	1893	20	40	se.	1894	20	36	ne.	1885	5	38	n.	1888	11	51	n.	1893	29

Stations.	September.				October.				November.				December.			
	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.	Vel.	Dir.	Year.	Date.
Lake Superior :																
Duluth	78	ne.	1881	16	55	ne.	1896	30	56	nw.	1898	21	60	sw.	1874	16
Marquette	61	s.	1893	21	46	n.	1892	28	48	sw.	1894	14	54	w.	1876	9
Sault Ste. Marie	45	sw.	1901	15	50	nw.	1893	14	52	nw.	1896	18	54	nw.	1901	31
Lake Michigan :																
Mackinaw City	39	w.	1887	6	57	e.	1887	23	53	e.	1886	17	60	se.	1887	31
Escanaba	40	n.	1875*	9	45	sw.	1880	16	60	n.	1877	8	54	n.	1873	3
Green Bay	52	nw.	1893	15	48	nw.	1892	28	40	n.	1892	17	38	sw.	1891	5
Milwaukee	48	w.	1890	20	60	sw.	1880	16	51	nw.	1883	11	56	sw.	1873	4
Chicago	72	sw.	1900	11	63	se.	1898	19	76	s.	1898	7	60	sw.	1894	16
Grand Haven	60	nw.	1878	19	55	sw.	1876	9	52	nw.	1882*	23	66	sw.	1876	15
Lake Huron :																
Alpena	48	w.	1884	10	42	nw.	1874	29	50	sw.	1874	5	72	sw.	1873	4
Port Huron	46	s.	1878	20	54	sw.	1887	24	58	sw.	1895	26	67	sw.	1889	29
Lake Erie :																
Detroit	43	sw.	1900	11	61	nw.	1891	31	76	sw.	1895	26	51	sw.	1890	23
Toledo	60	s.	1898	24	52	se.	1901	12	60	sw.	1895	26	48	sw.	1889	29
Sandusky	52	nw.	1897	16	54	n.	1885	29	62	nw.	1879	20	56	nw.	1885	5
Cleveland	66	nw.	1897	16	62	nw.	1894	11	73	s.	1895	26	60	w.	1898	5
Erie	45	sw.	1895	12	48	w.	1887	24	54	w.	1891	23	52	s.	1875	...
Buffalo	78	w.	1900	12	66	w.	1887	24	80	w.	1900	21	78	w.	1895	31
Lake Ontario :																
Rochester	56	w.	1882	14	56	sw.	1887	24	55	s.	1883	26	54	w.	1889	22
Oswego	51	nw.	1892	26	56	se.	1893	14	48	w.	1900	21	52	w.	1889	26

* And other years.

Chart I.

January 8, 1876—7:35 a. m.

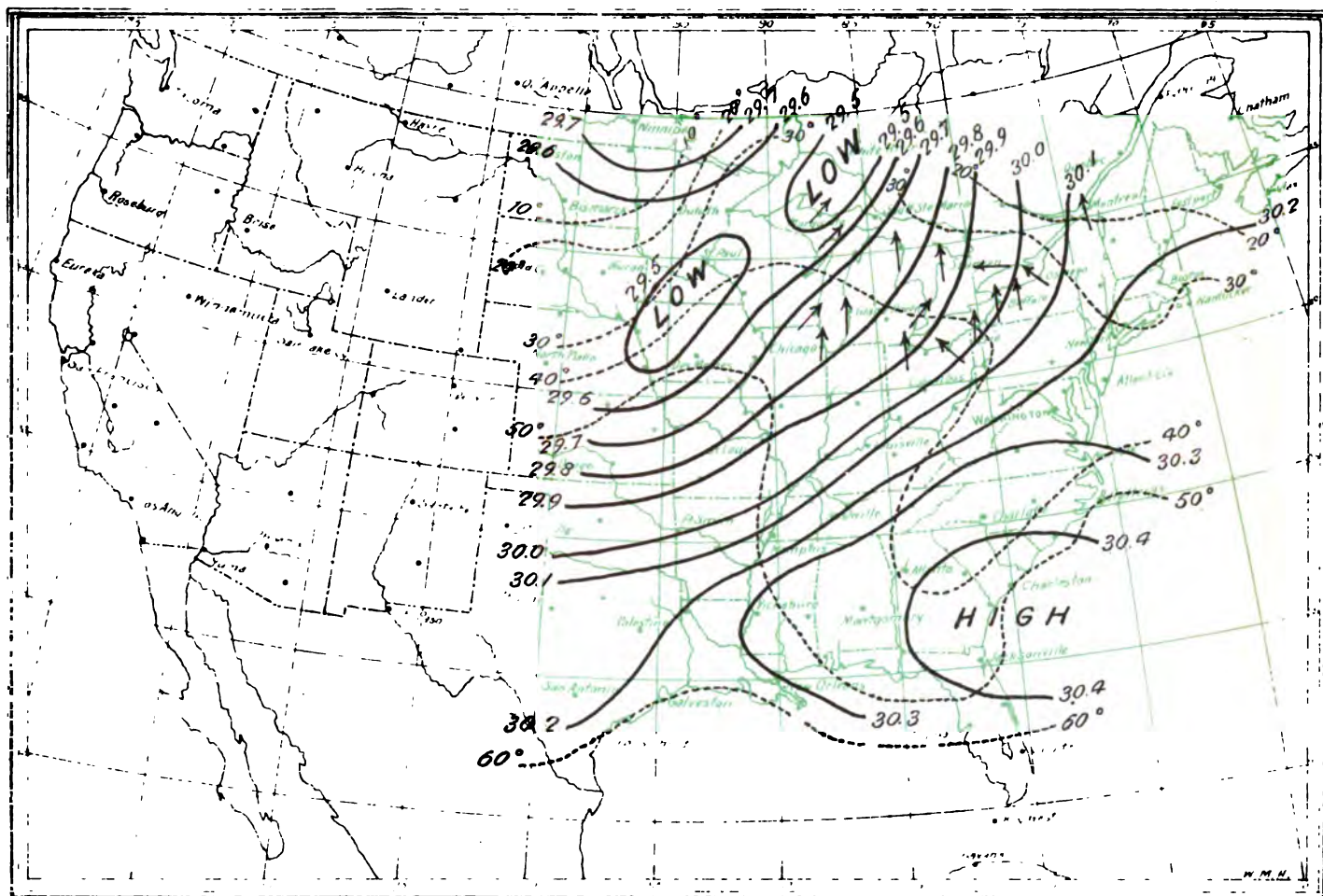


Chart II.

January 8, 1876—11 p. m.

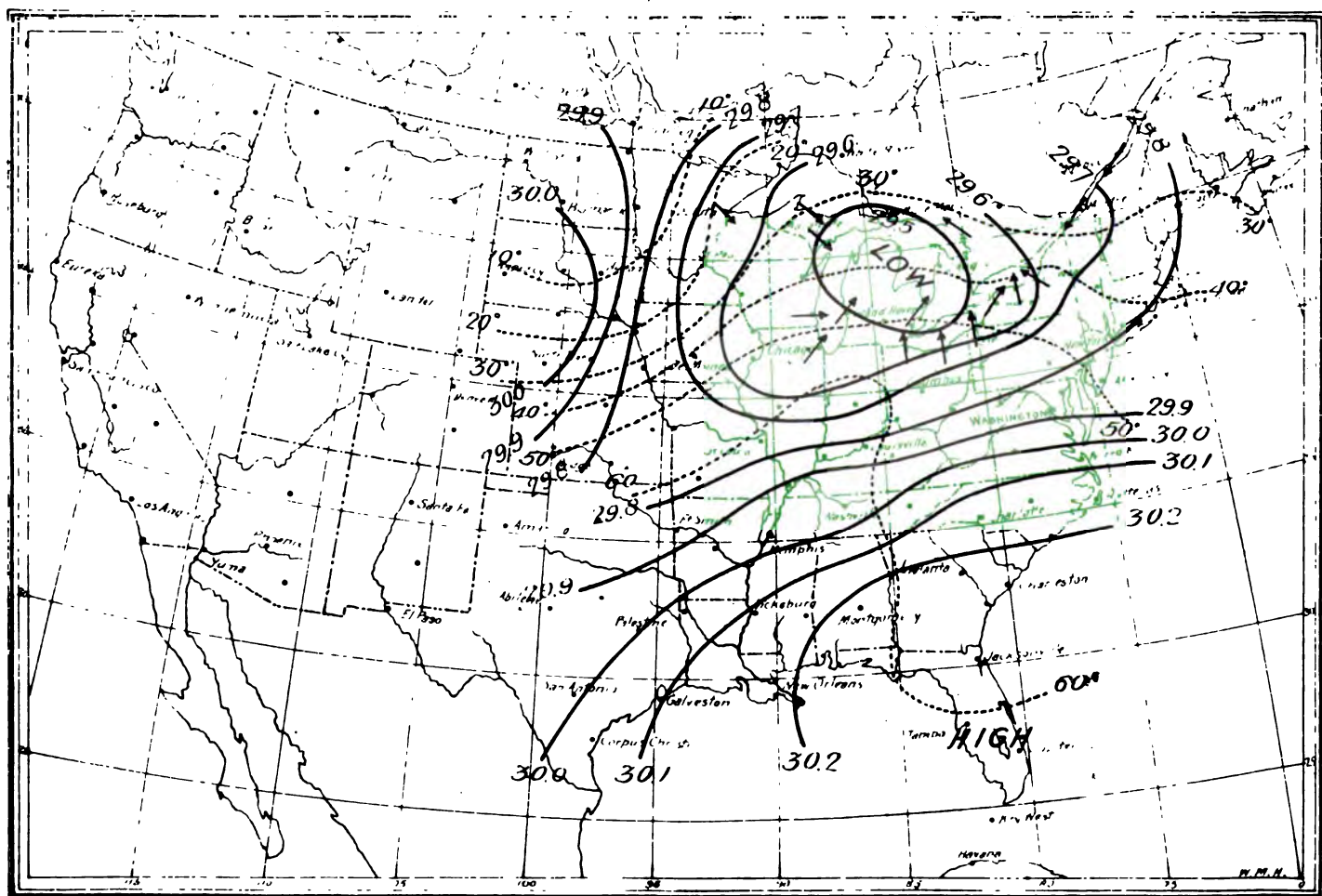


Chart III.

January 9, 1876-7:35 a. m.

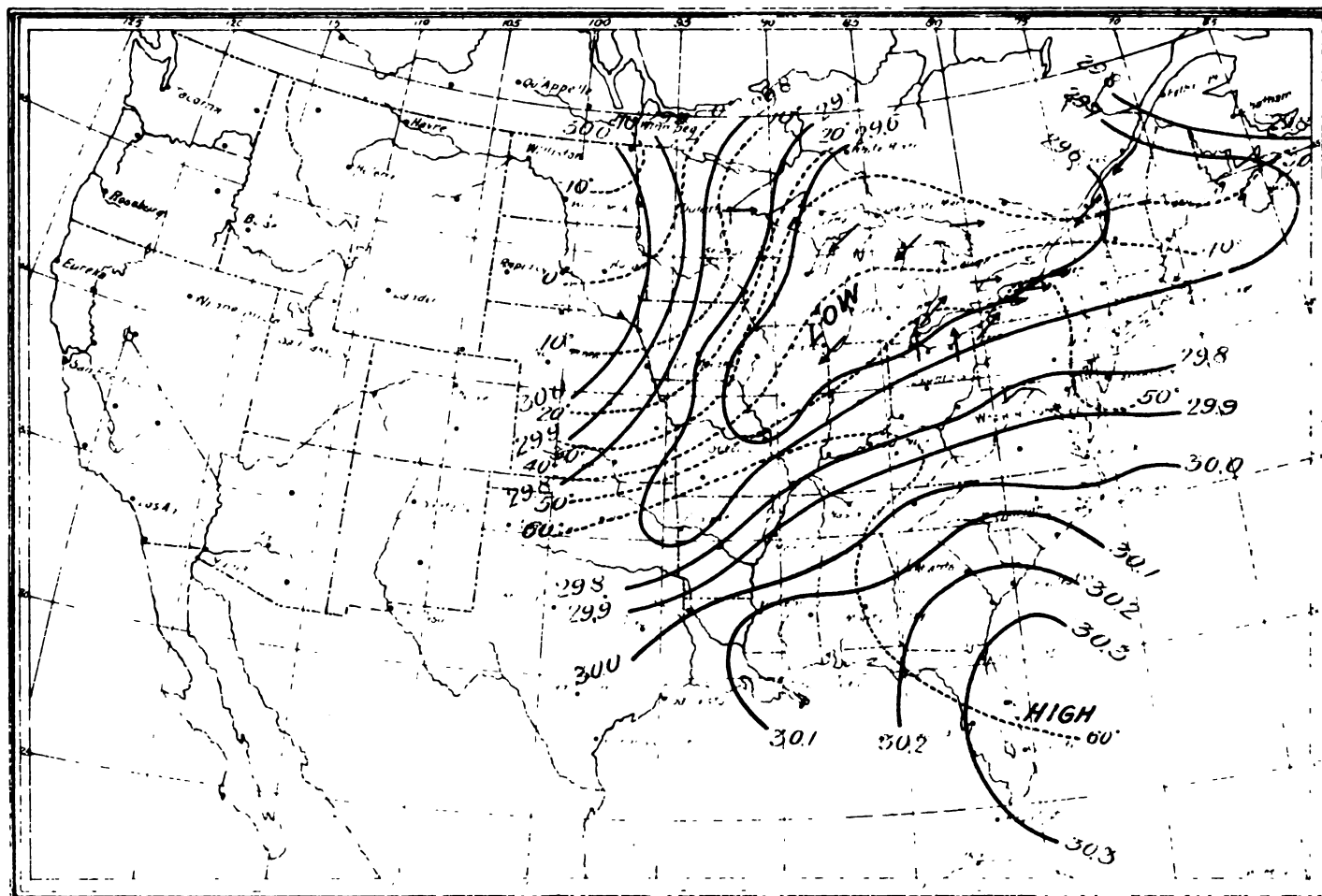
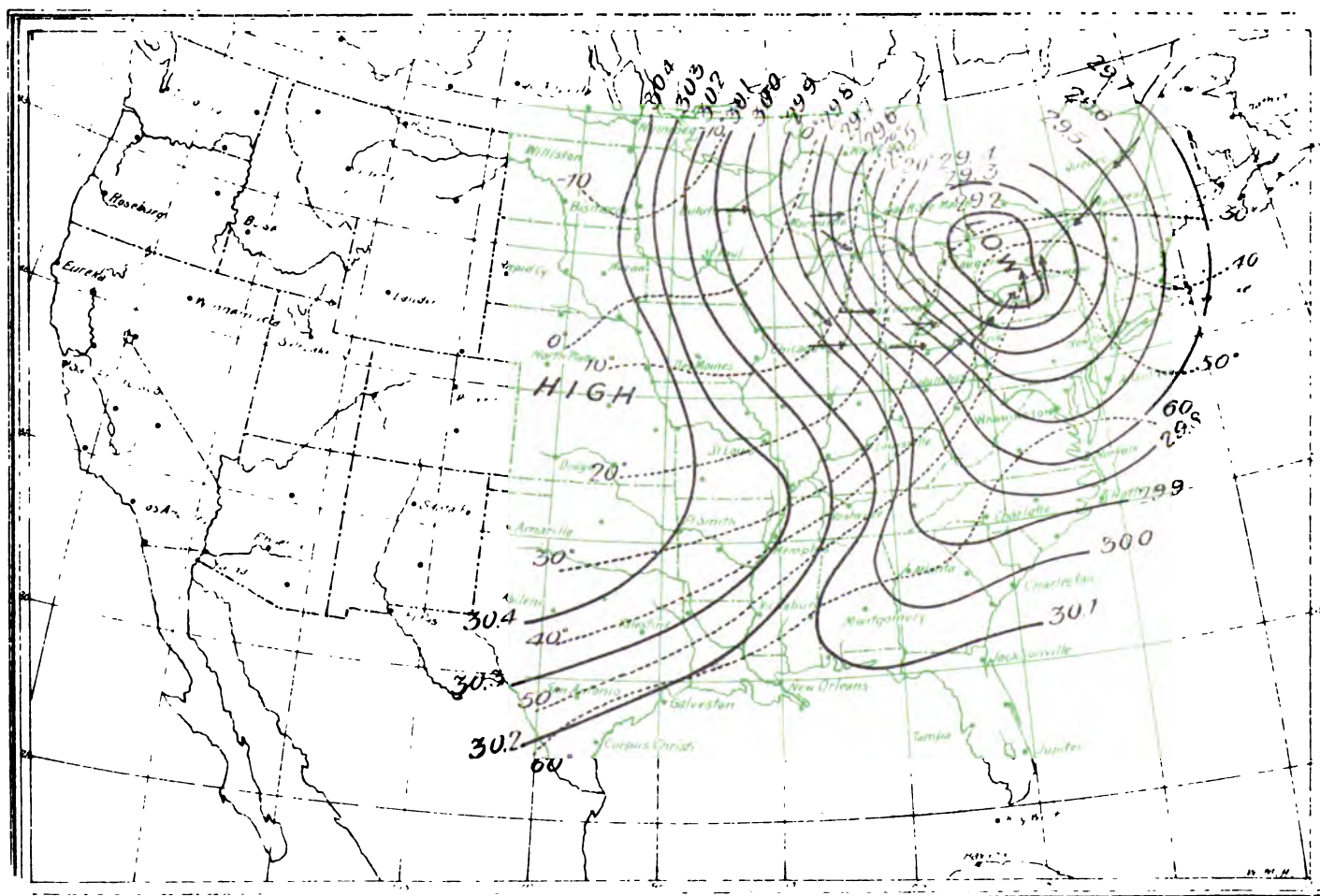


Chart IV.

January 10, 1876-1 a. m.



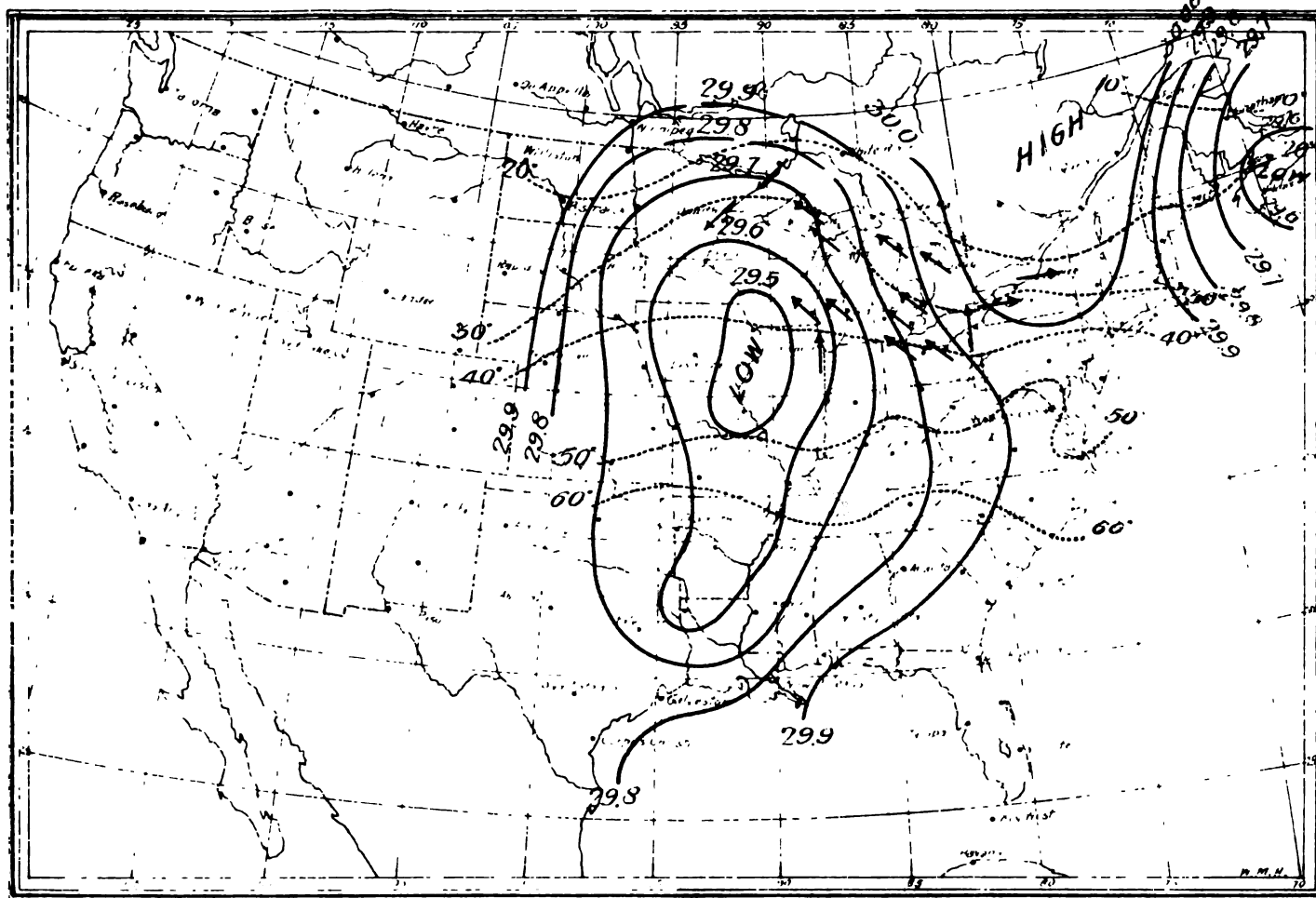


Chart VI.

January 21, 1880—11 p. m.

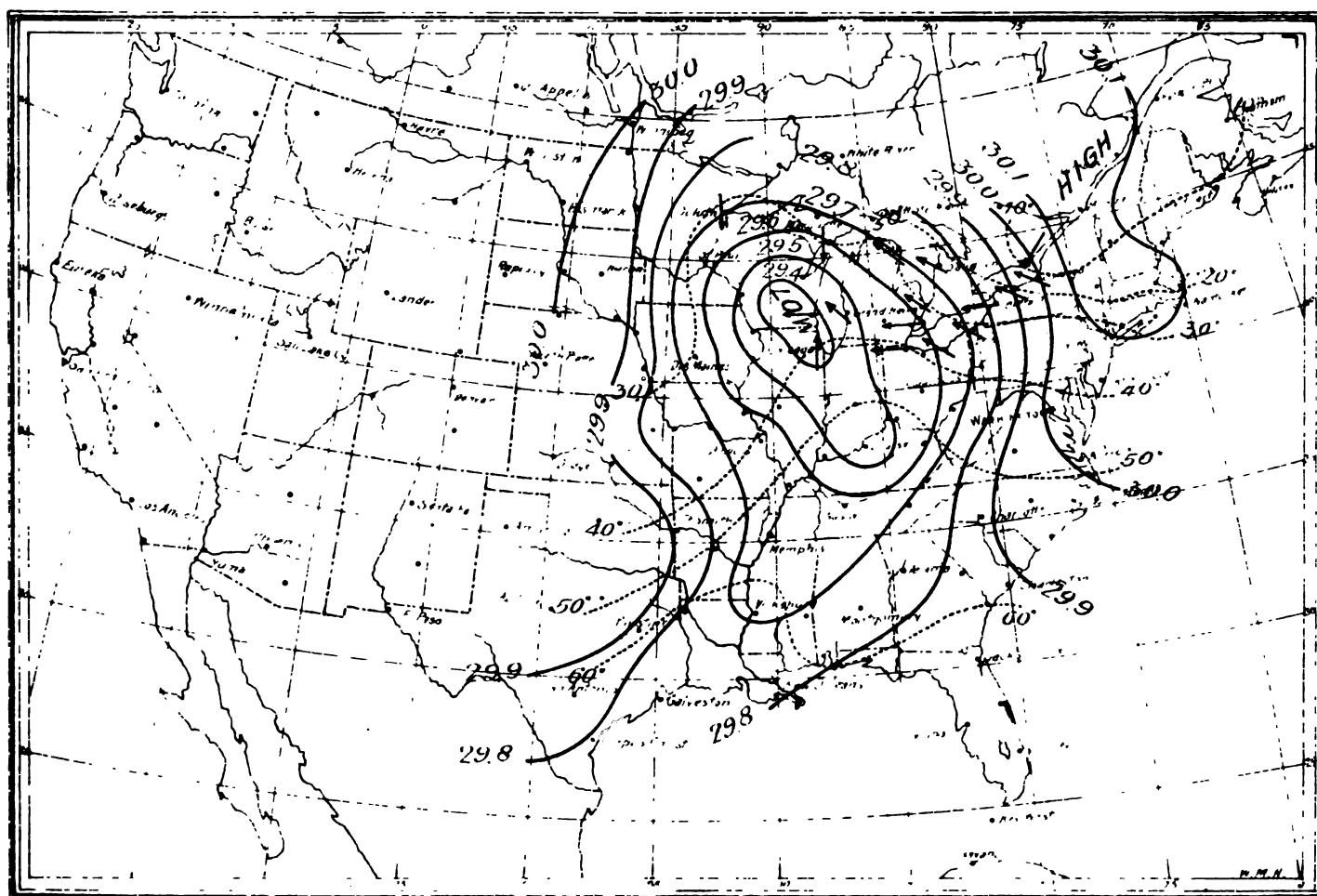


Chart VII.

January 22, 1880—7 a. m.

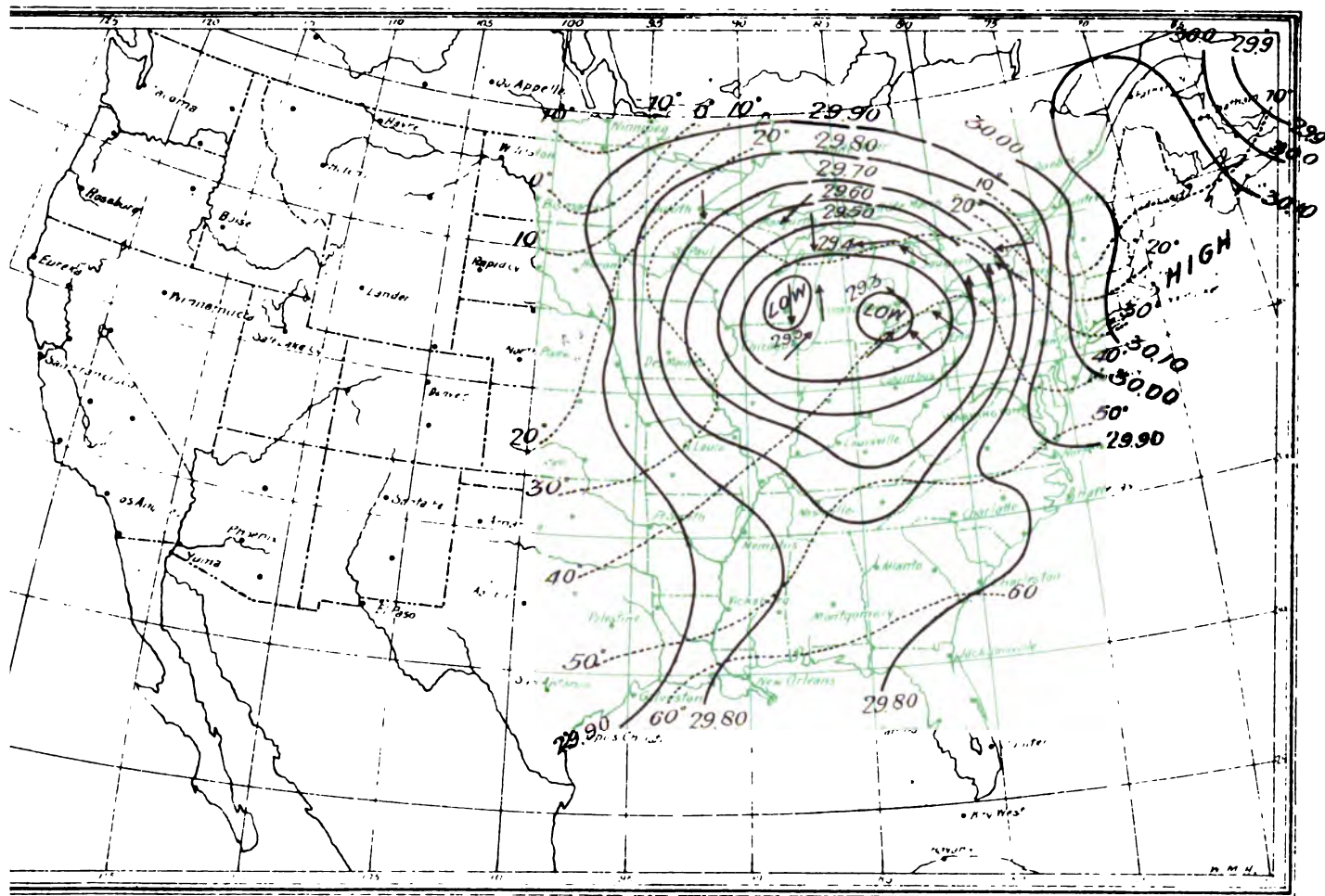
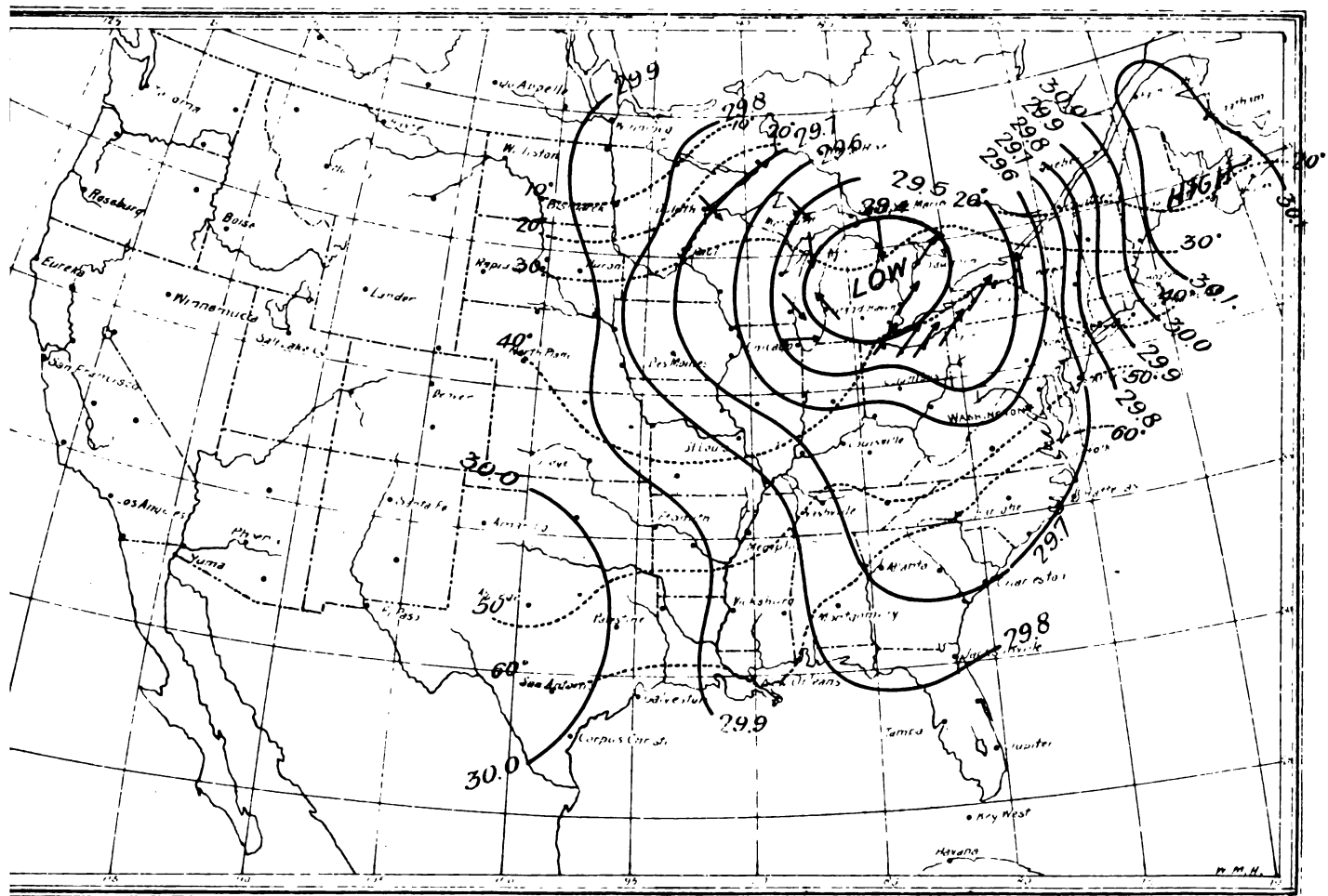


Chart VIII.

January 22, 1880—3 p. m.



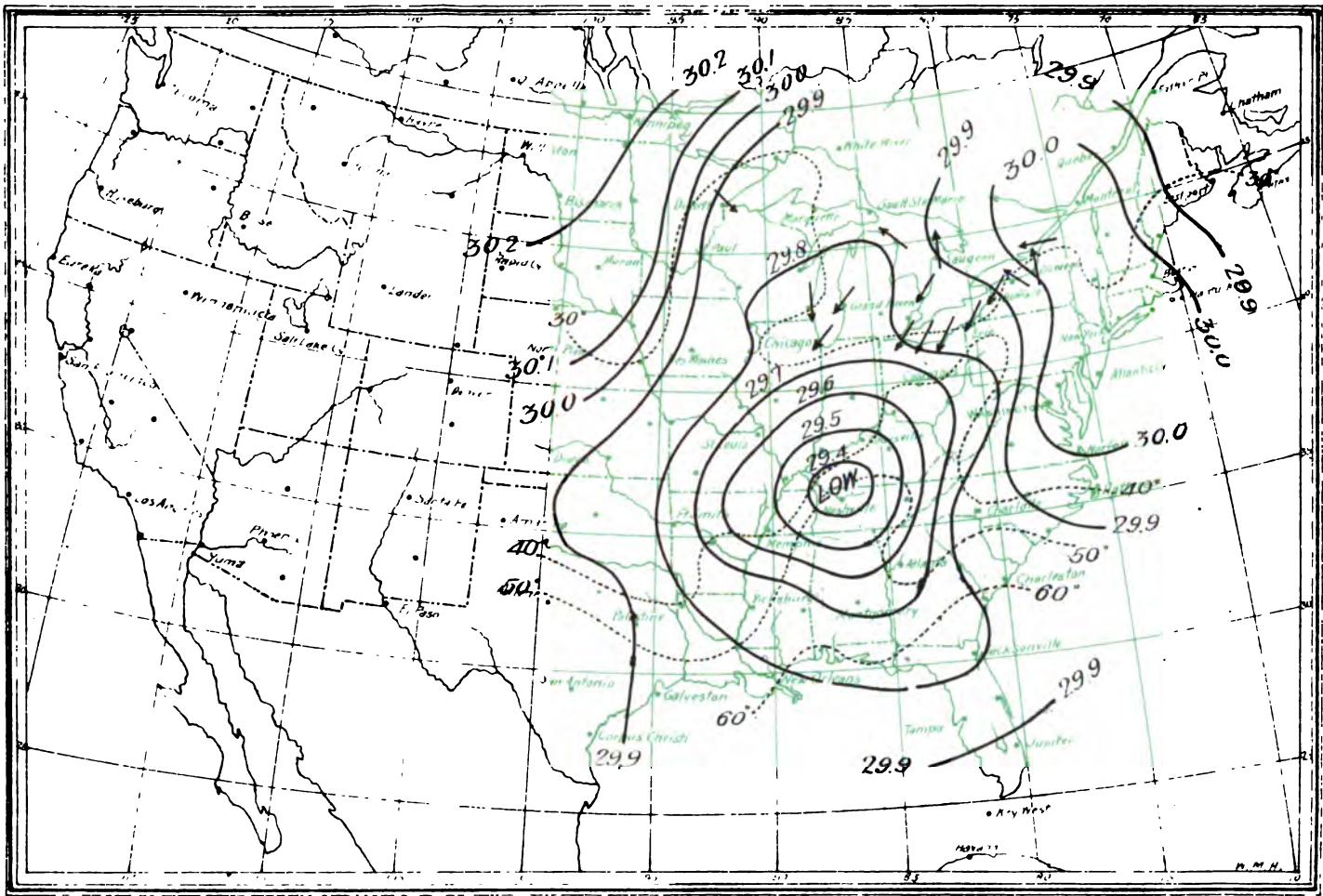


Chart X.

January 20, 1881—11 p. m.

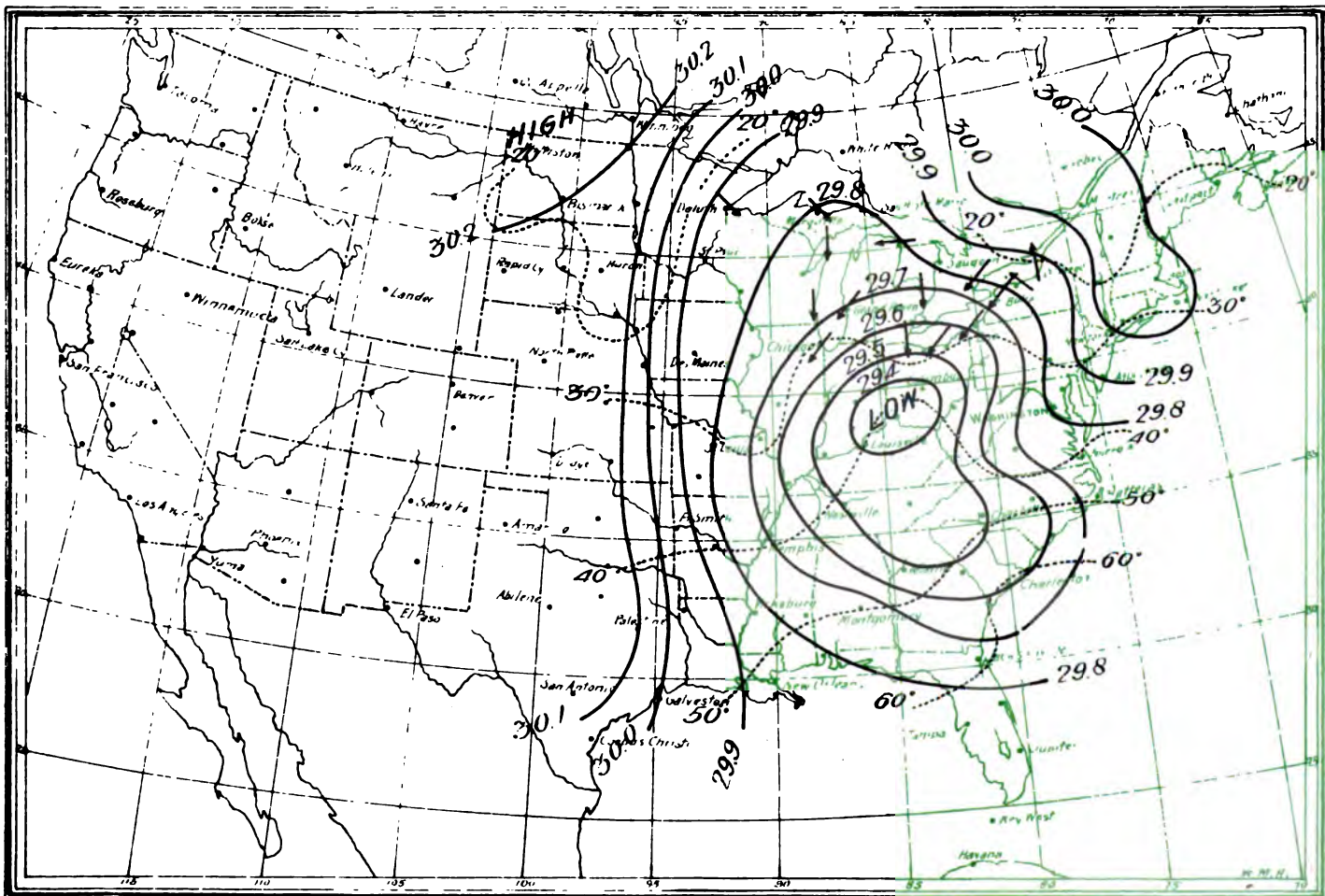


Chart XI.

January 21, 1881—7 a. m.

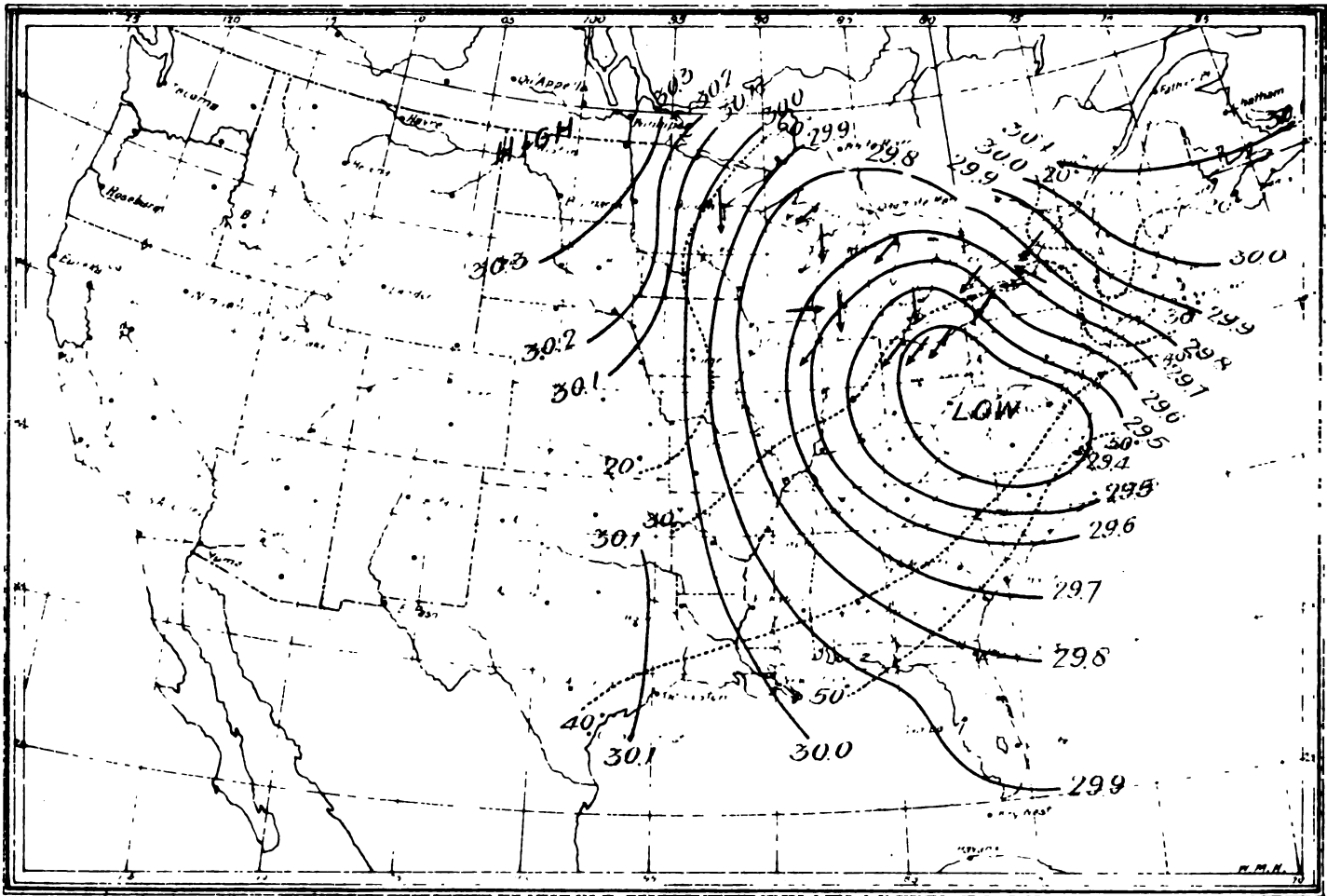


Chart XII.

January 21, 1881—3 p. m.

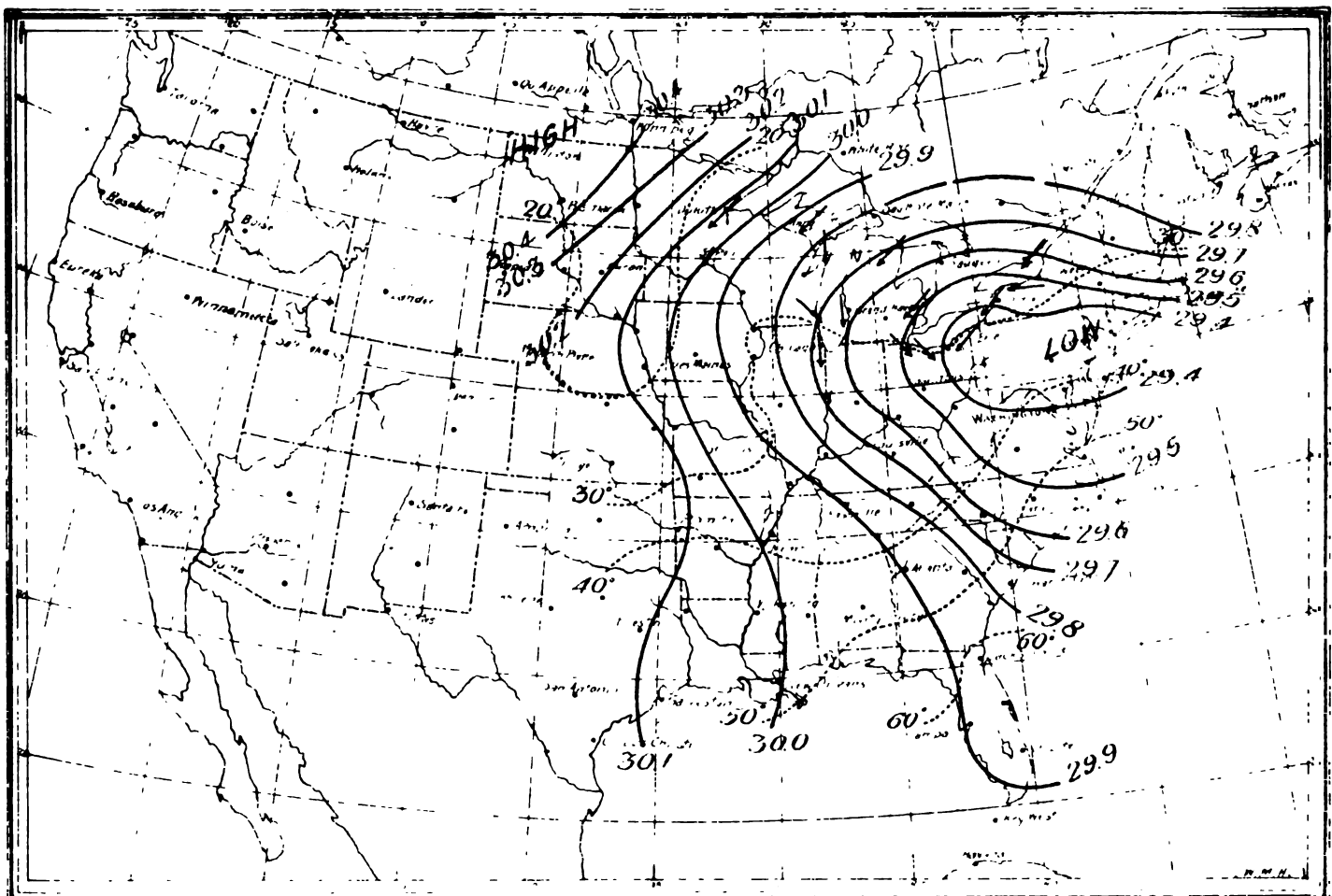


Chart XIII.

January 25, 1882—11 p. m.

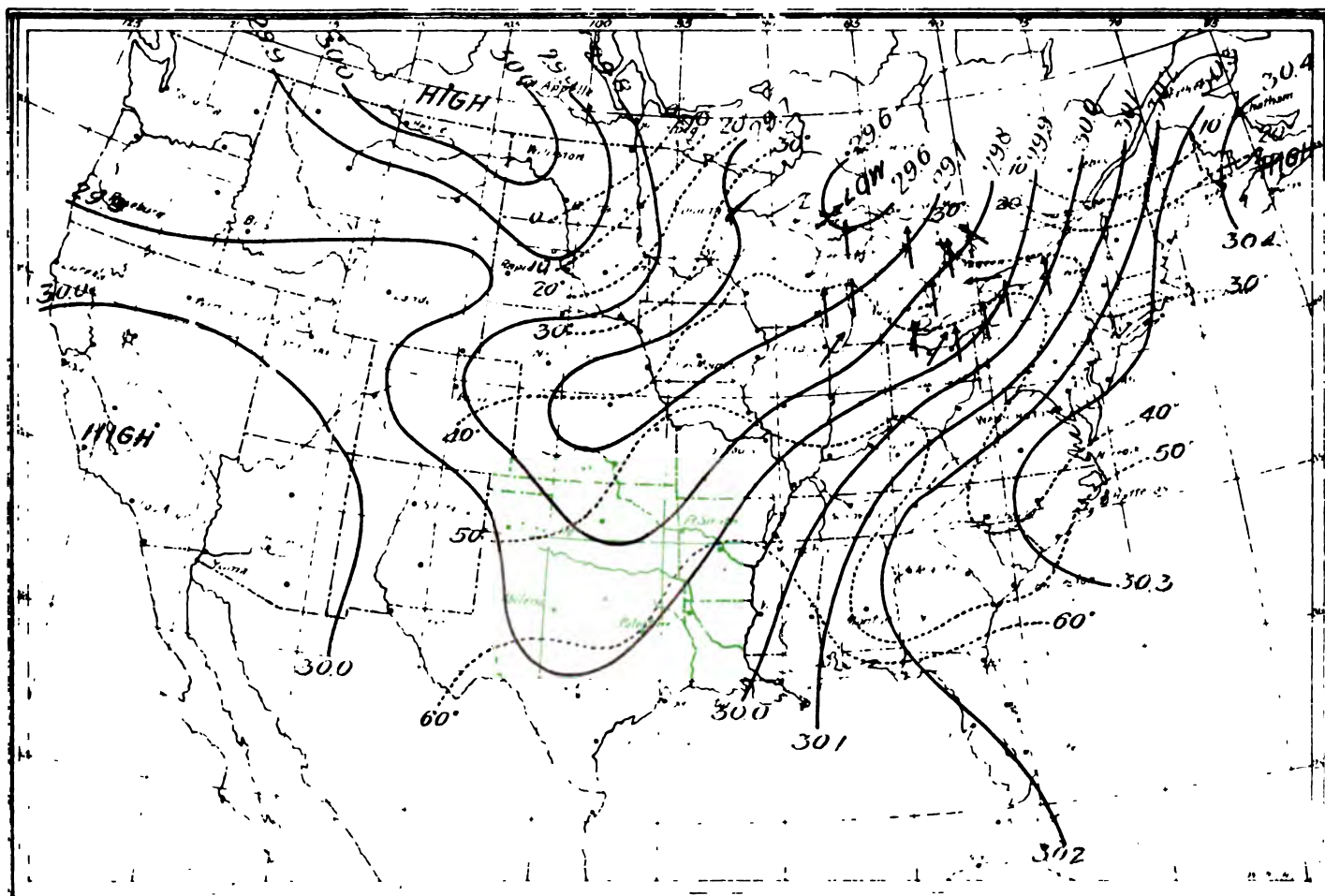


Chart XIV.

January 26, 1882—7 a. m.

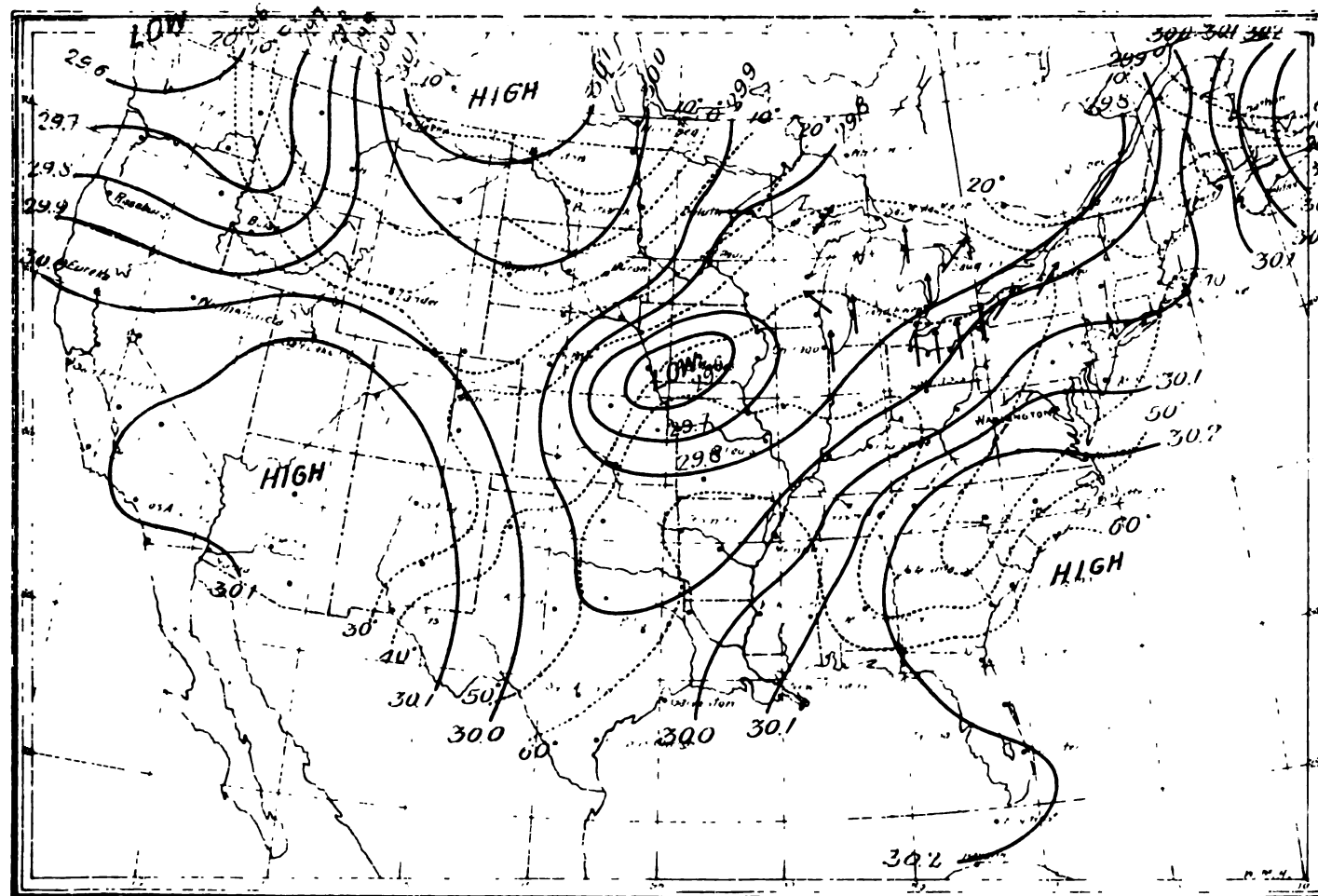


Chart XV.

January 26, 1882—3 p. m.

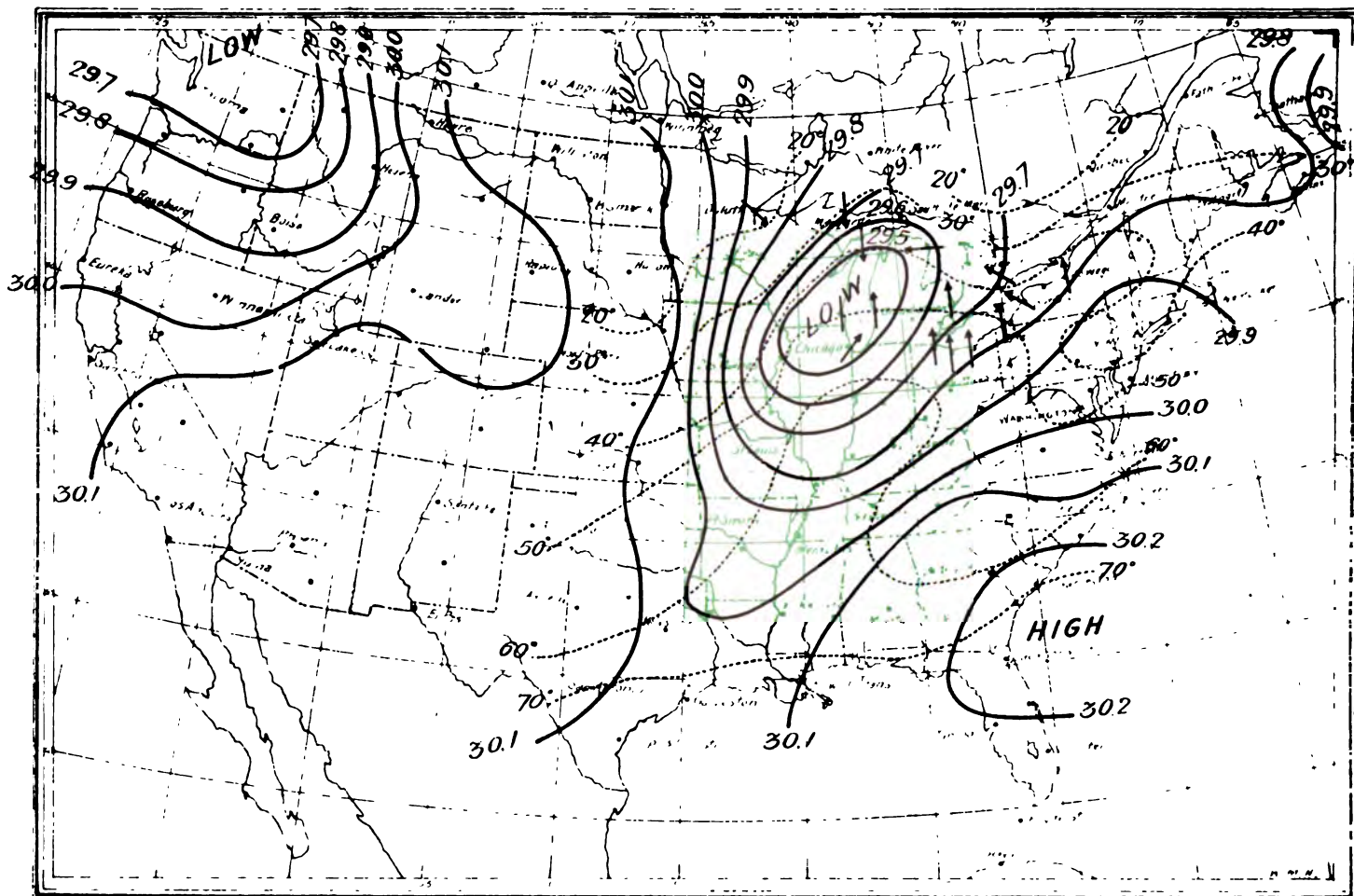


Chart XVI.

January 26, 1882—11 p. m.

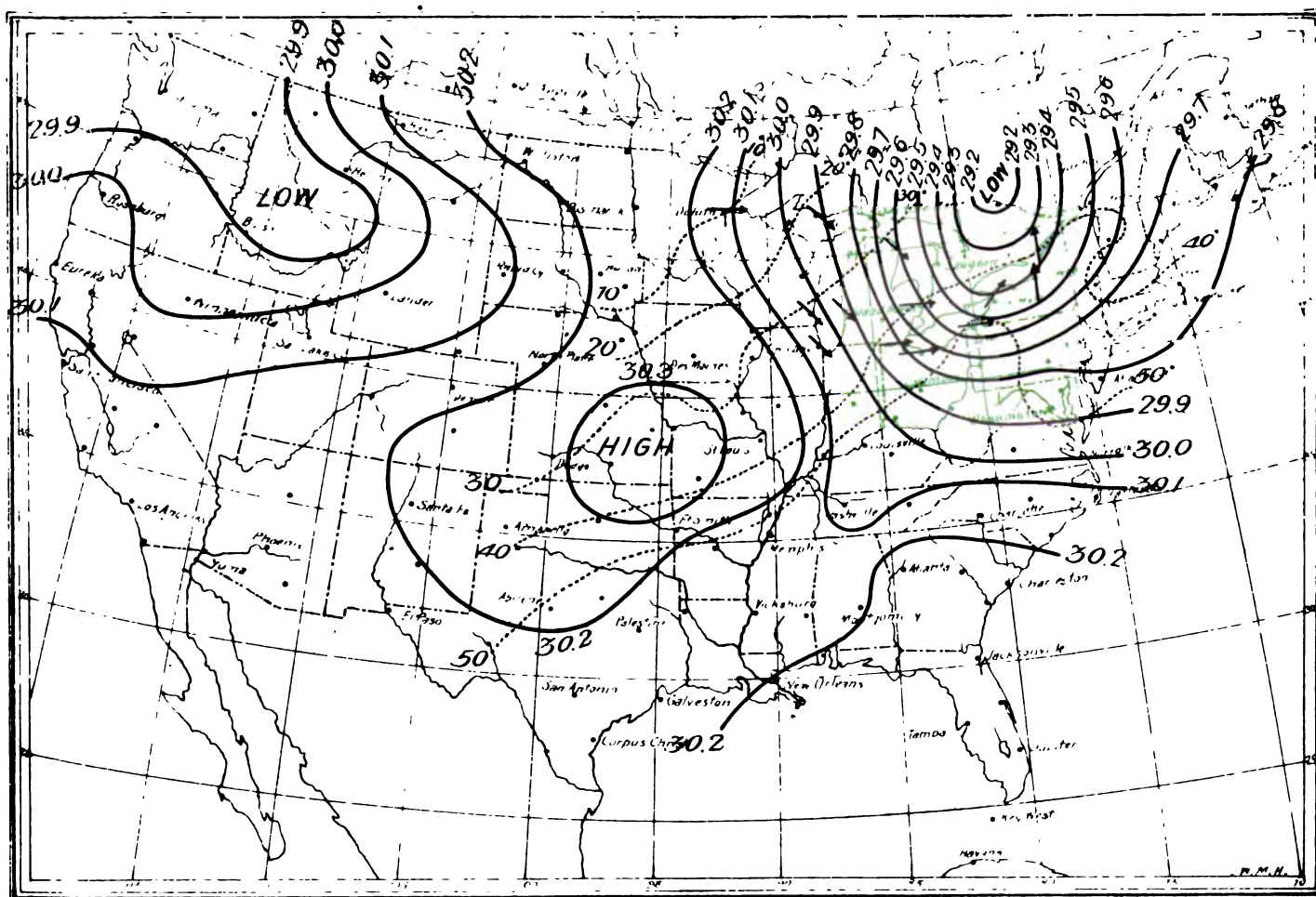


Chart XVII.

January 19, 1883—11 p. m.

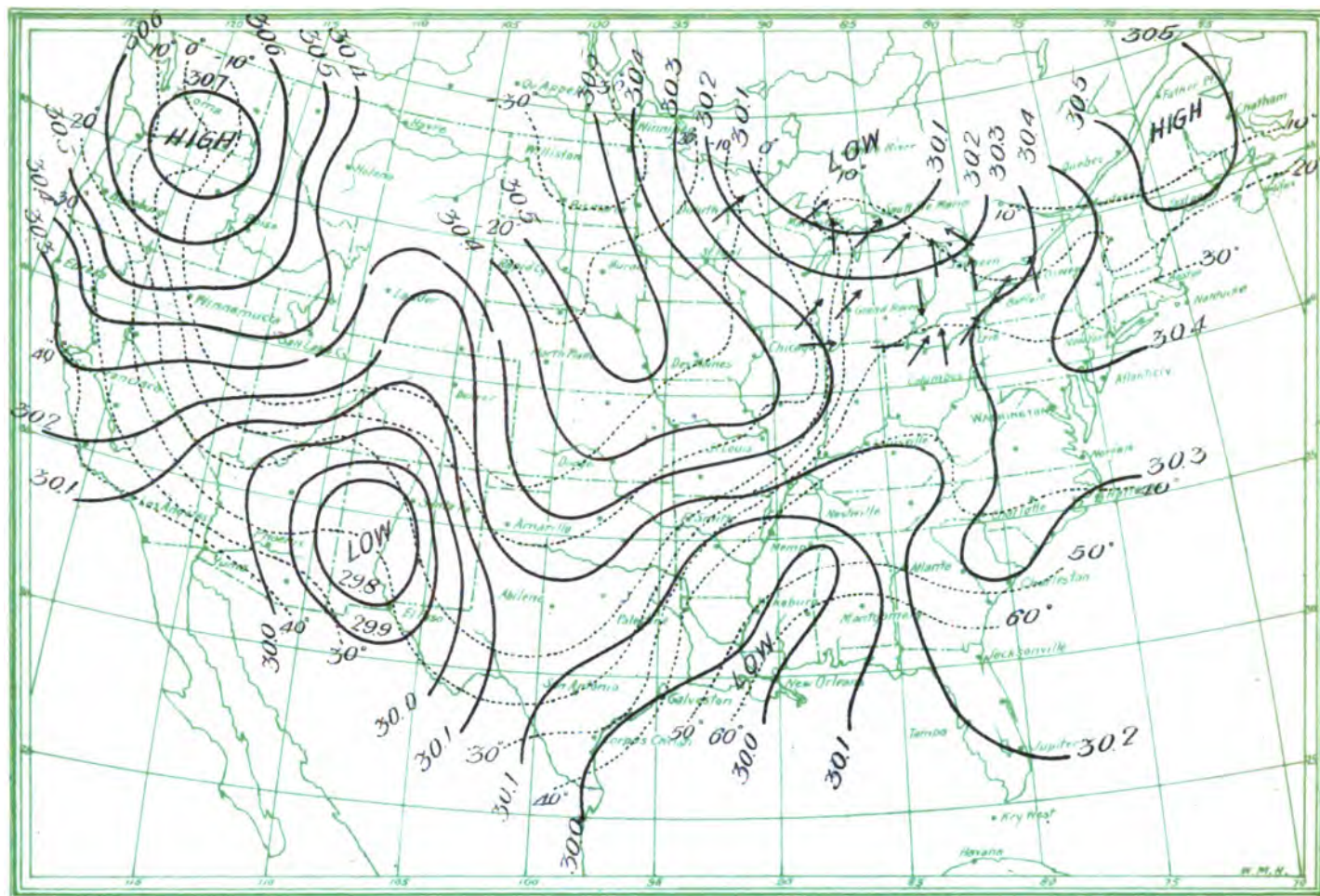


Chart XVIII.

January 20, 1883—7 a. m.

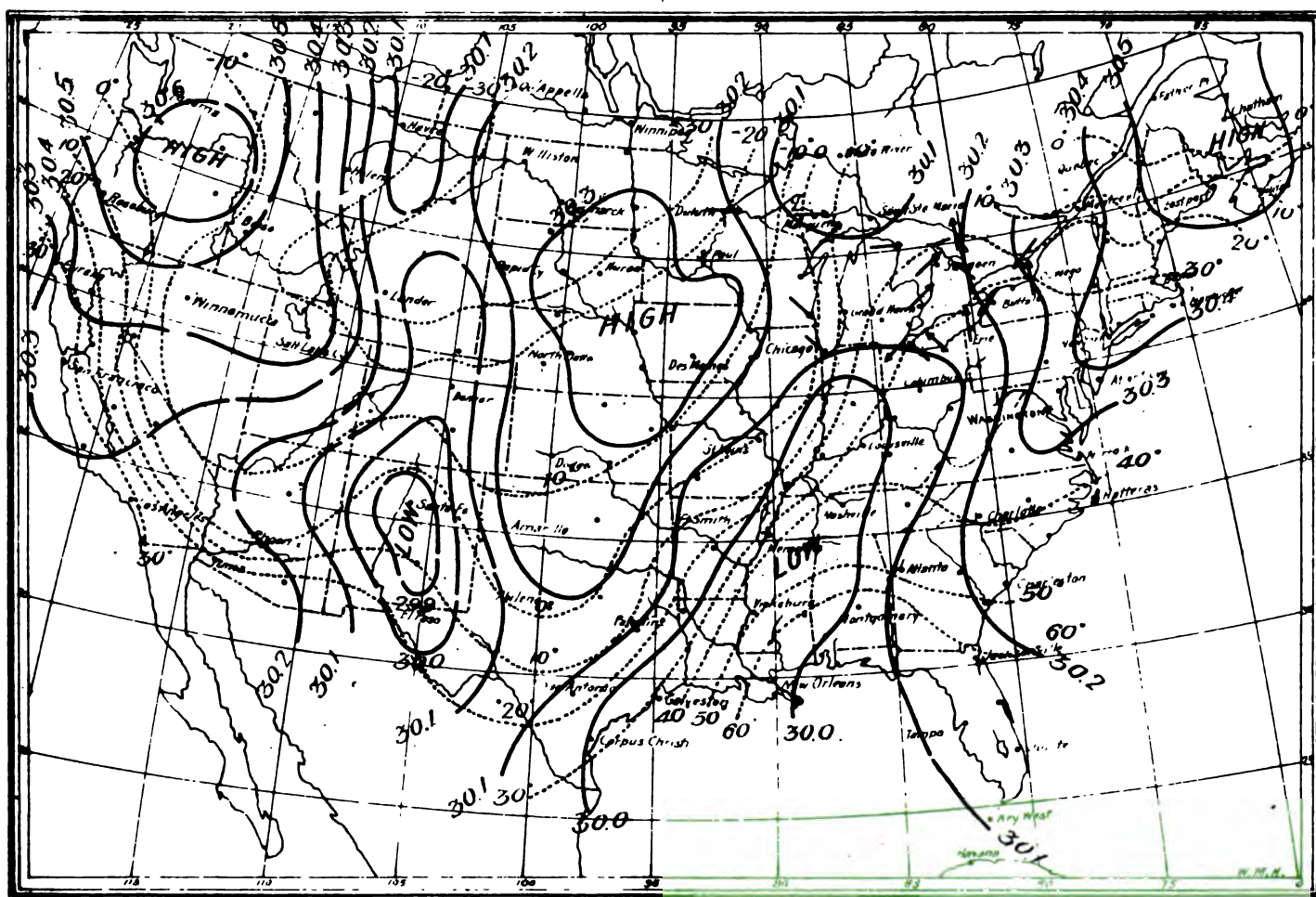


Chart XIX.

January 20, 1883—3 p. m.

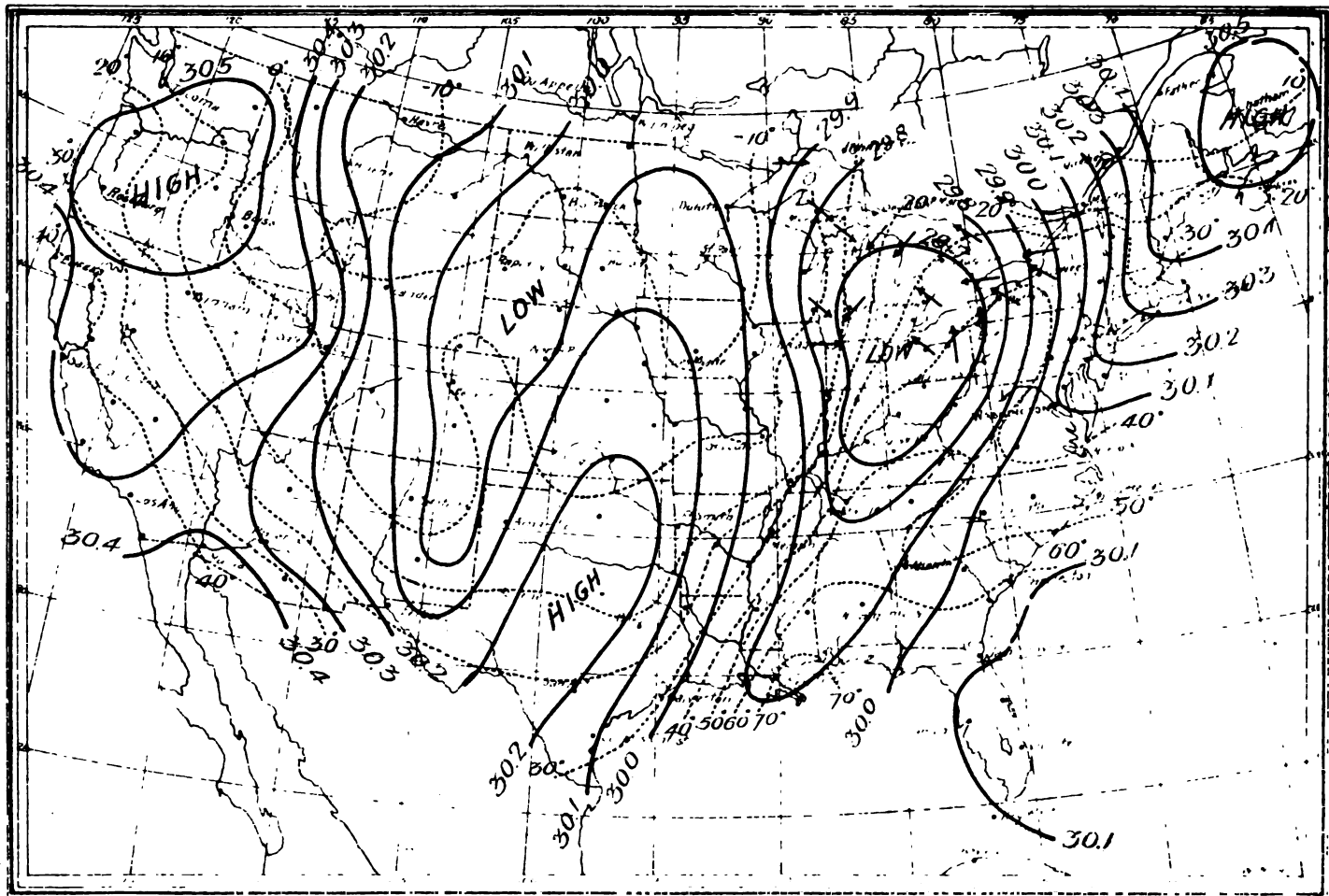


Chart XX.

January 20, 1883—11 p. m.

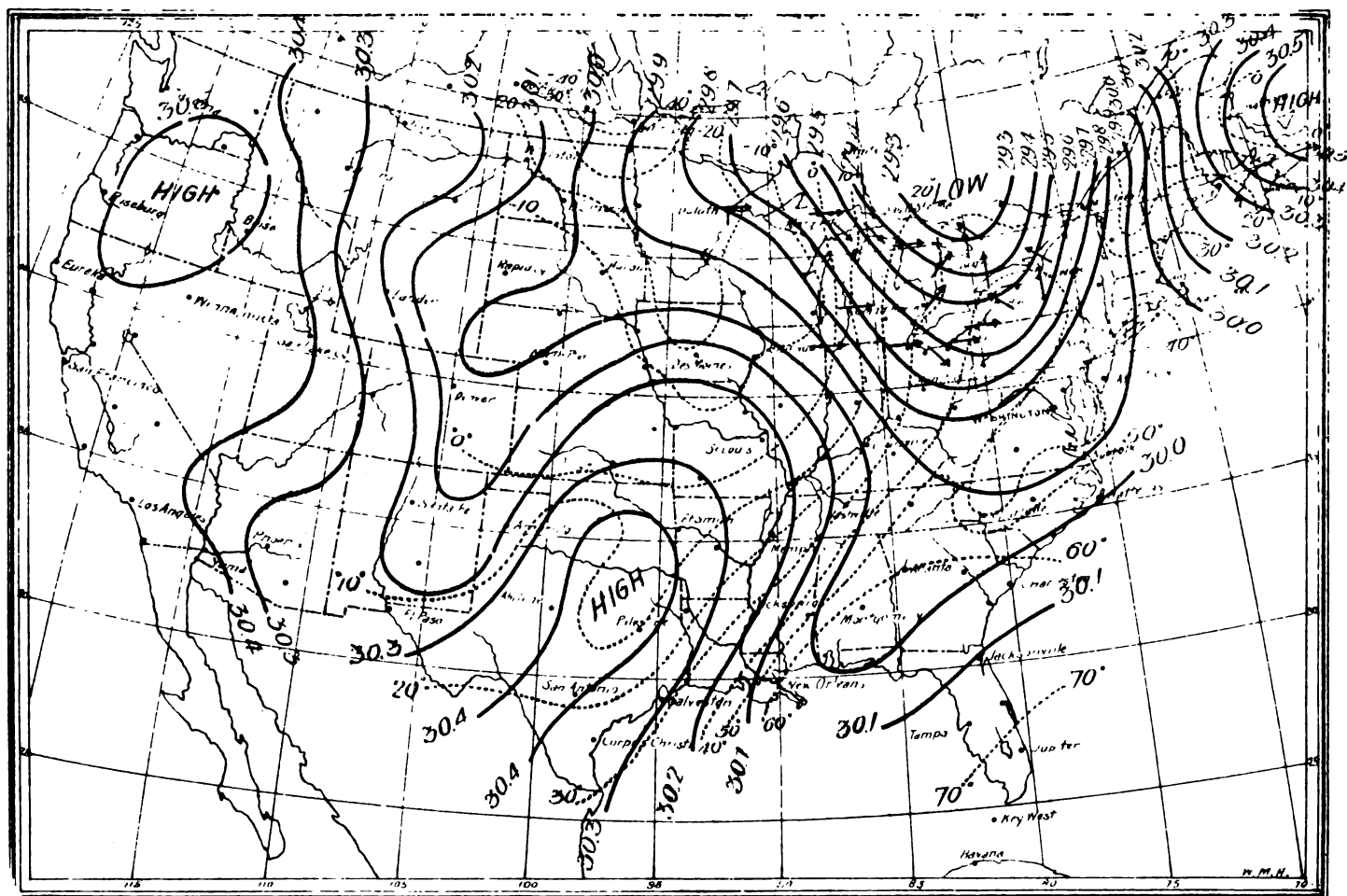


Chart XXI.

January 1, 1884—7 a. m.

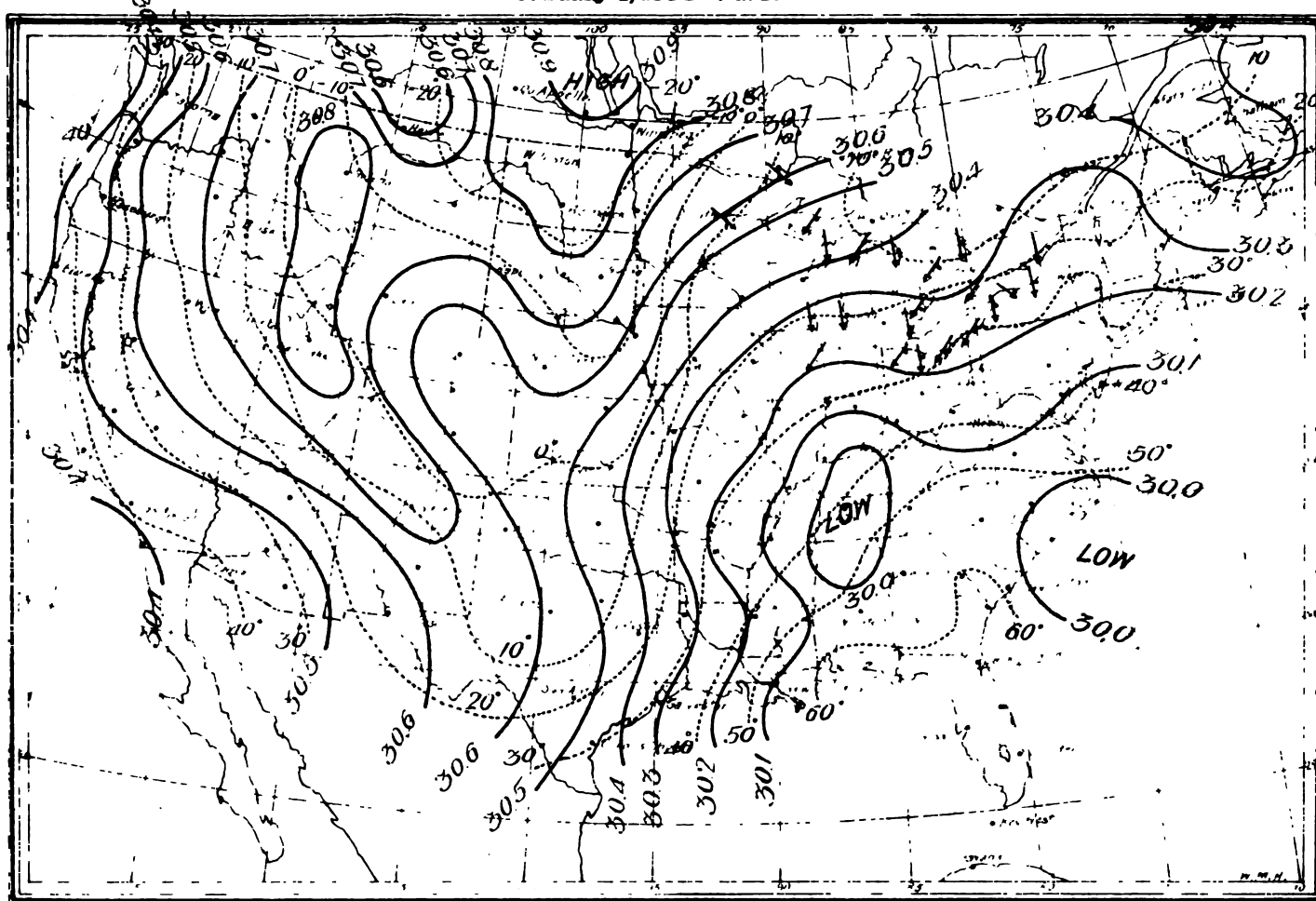


Chart XXII.

January 1, 1884—3 p. m.

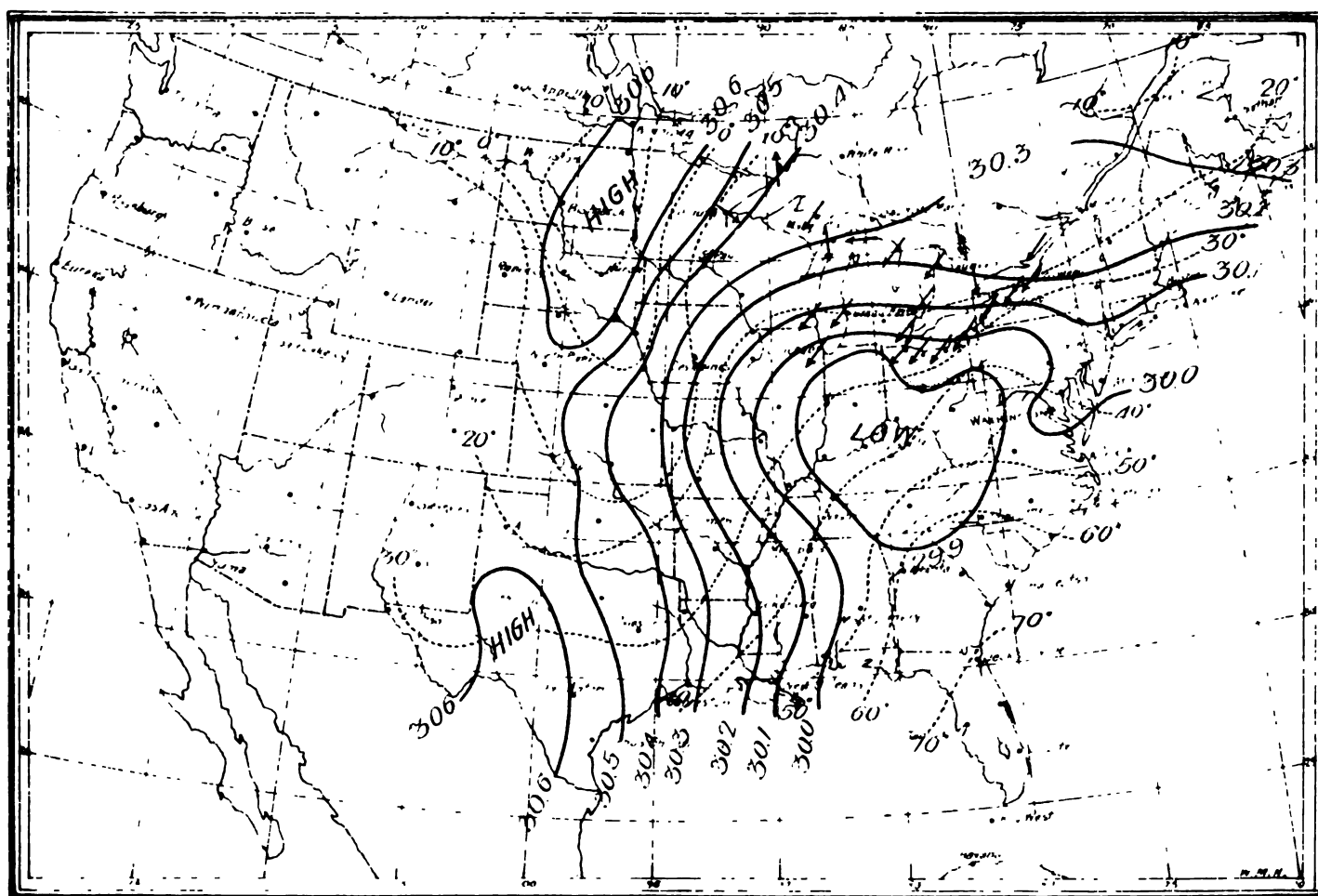


Chart XXIII.

January 1, 1884—11 p. m.

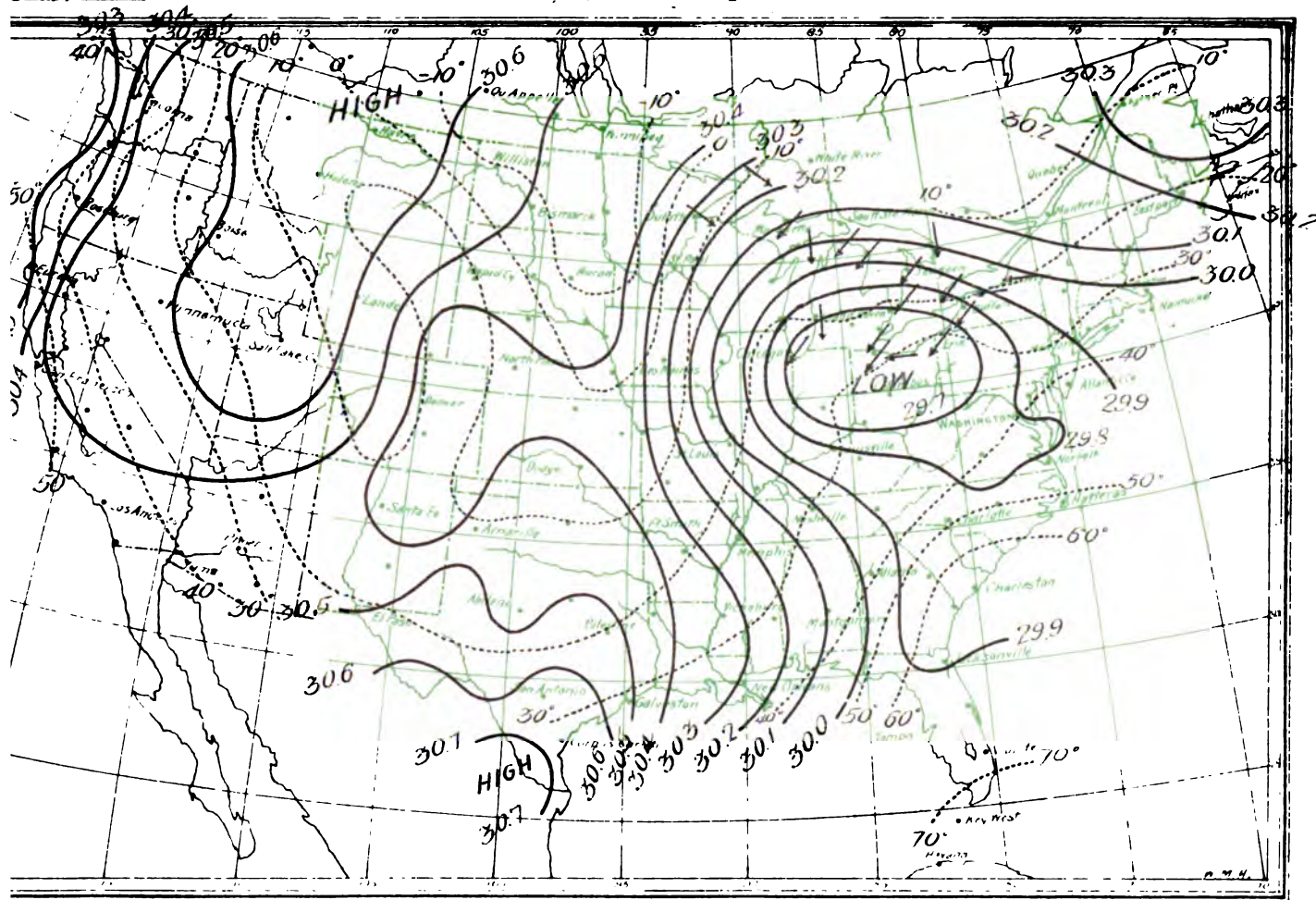


Chart XXIV

January 2, 1884—7 a. m.

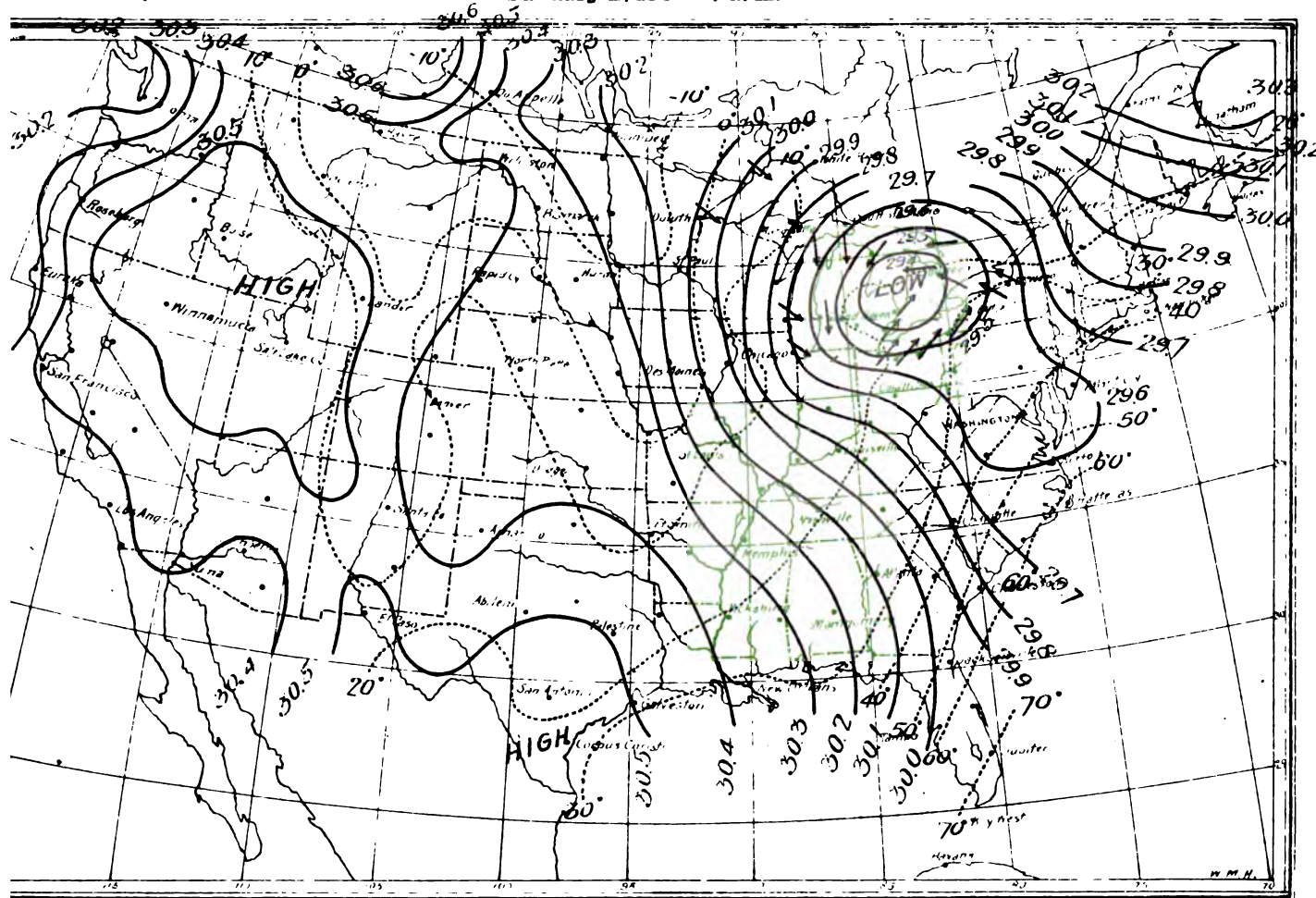


Chart XXV.

January 5, 1885—3 p. m.

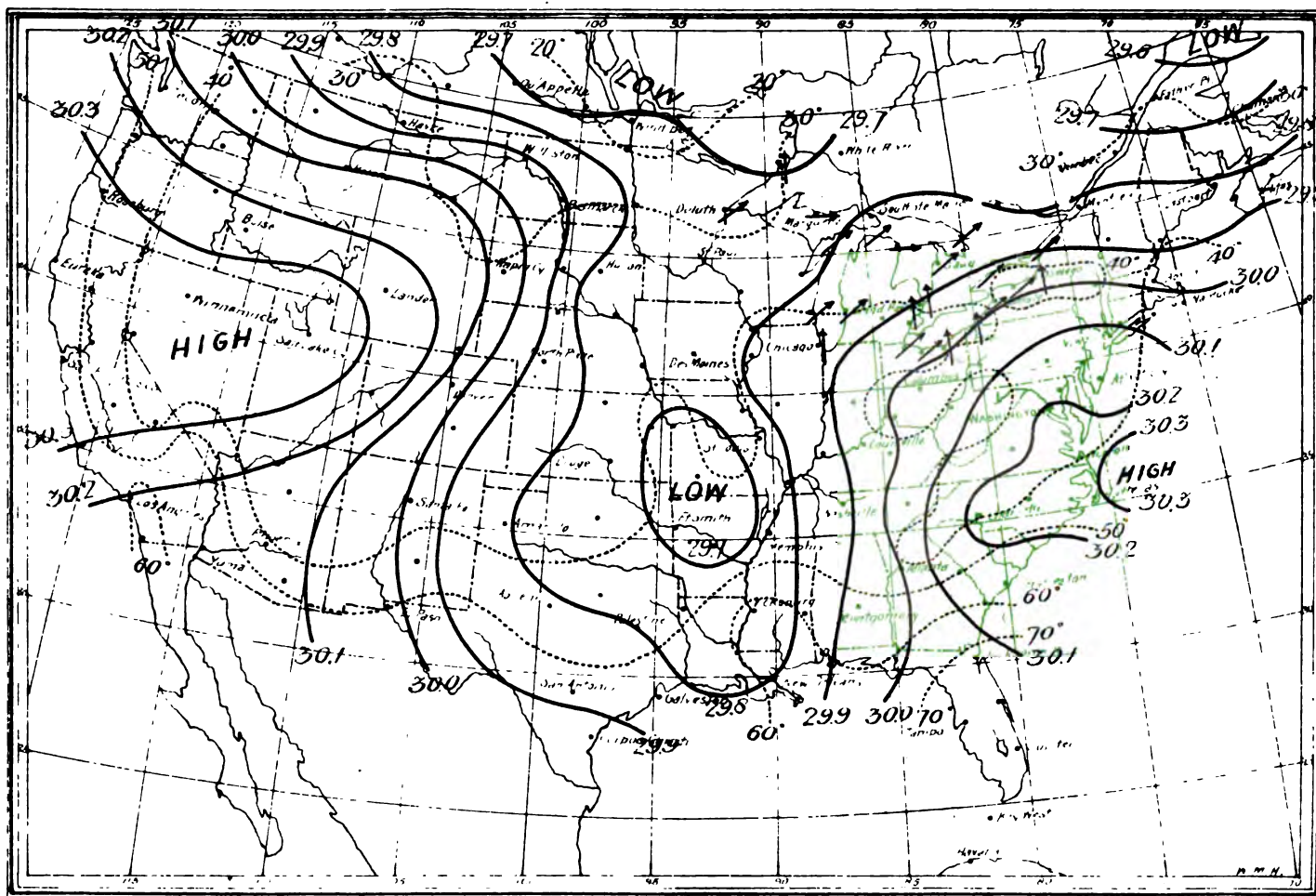


Chart XXVI.

January 5, 1885—11 p. m.

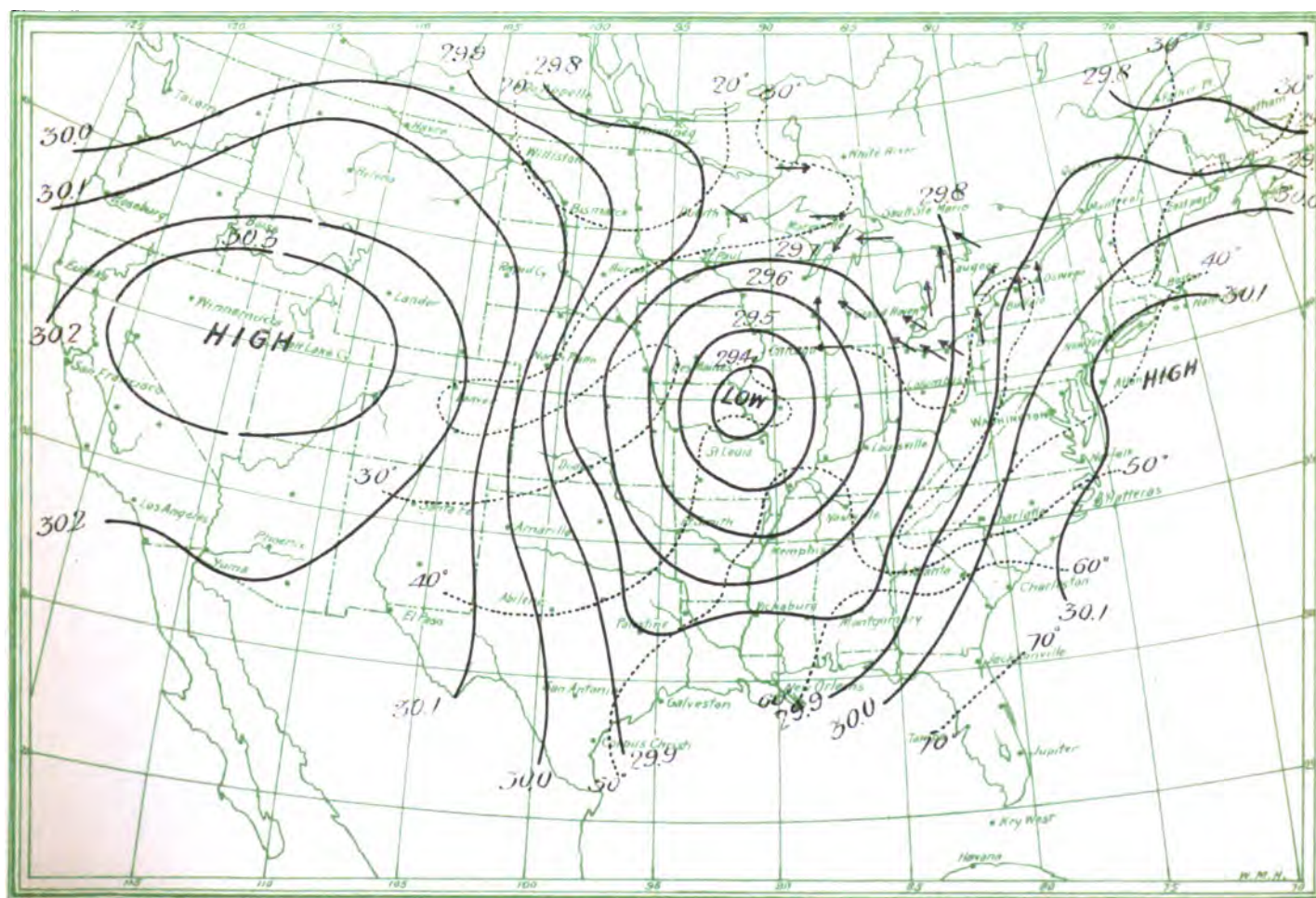


Chart XXVII

January 6, 1885—7 a. m.

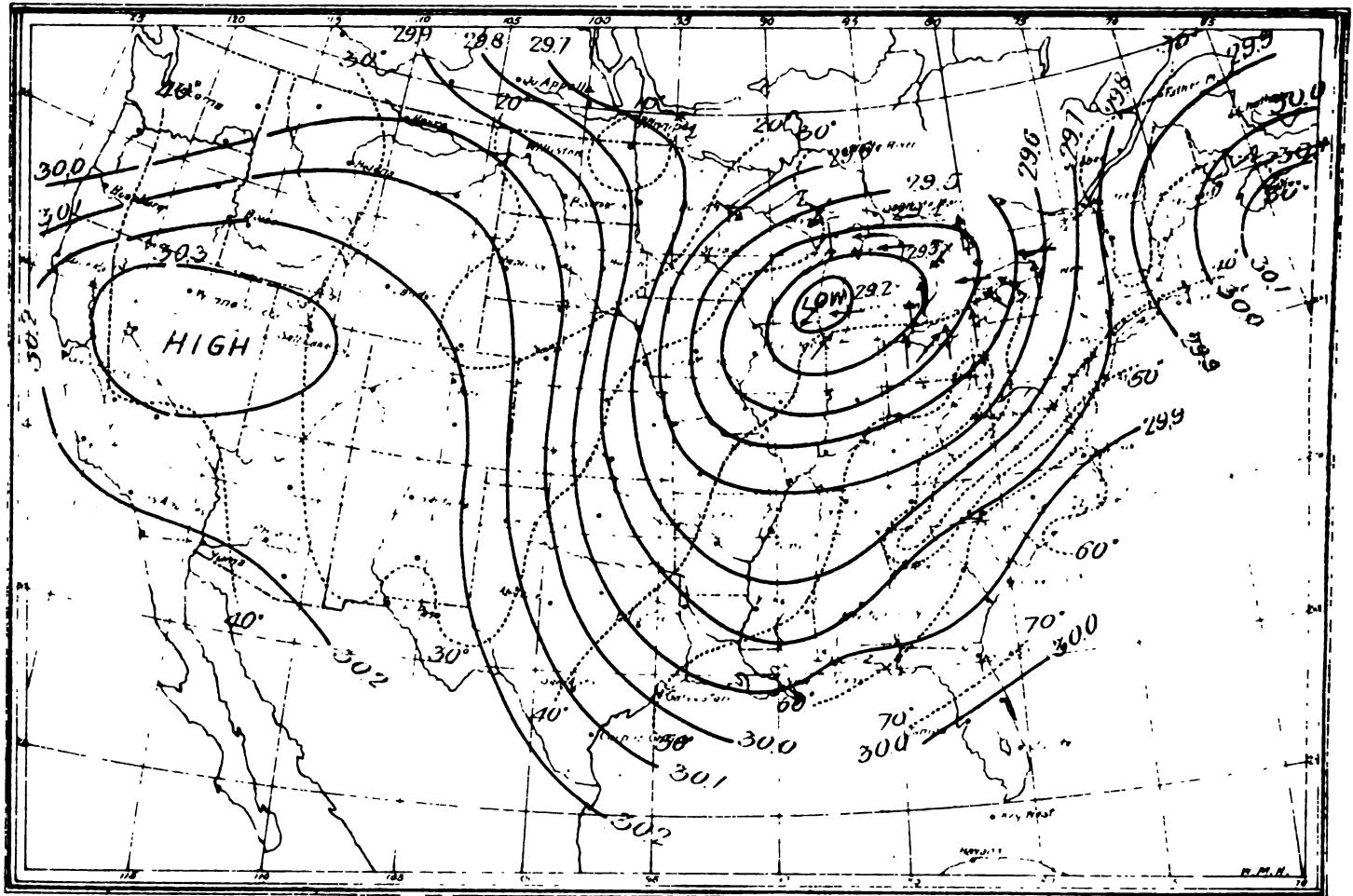


Chart XXVIII.

January 6, 1885—3 p. m.

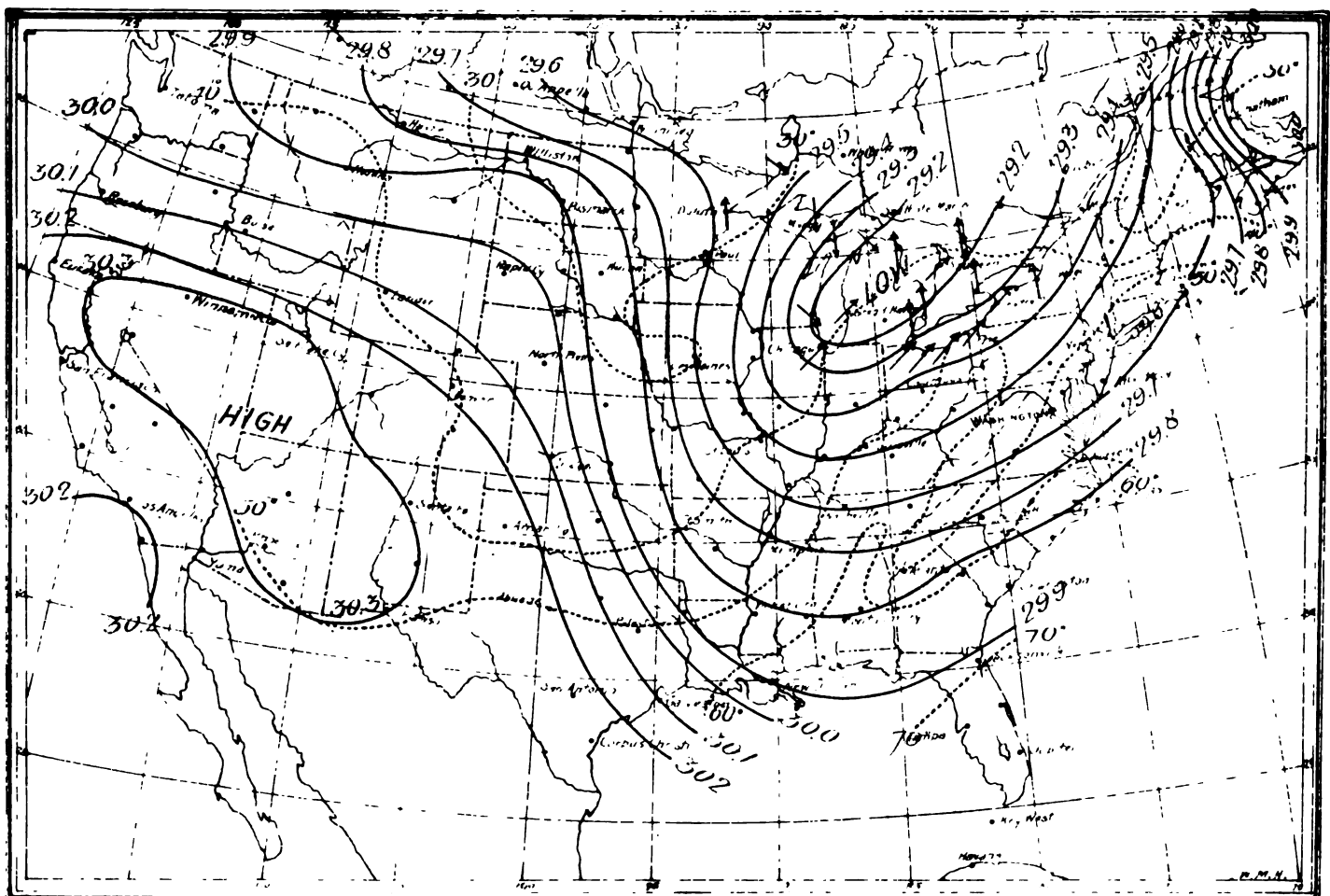


Chart XXIX

January 10, 1885—11 p. m.

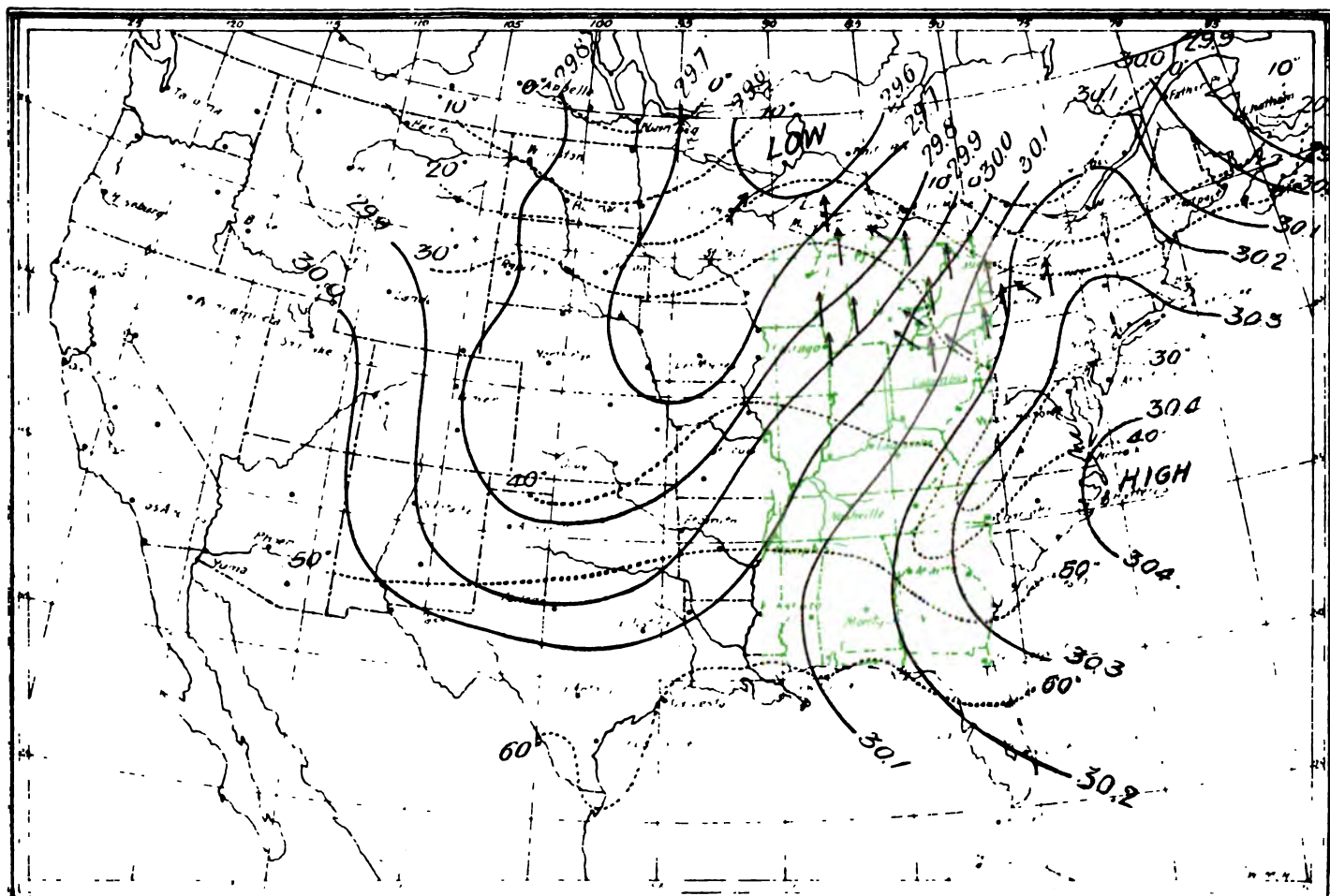
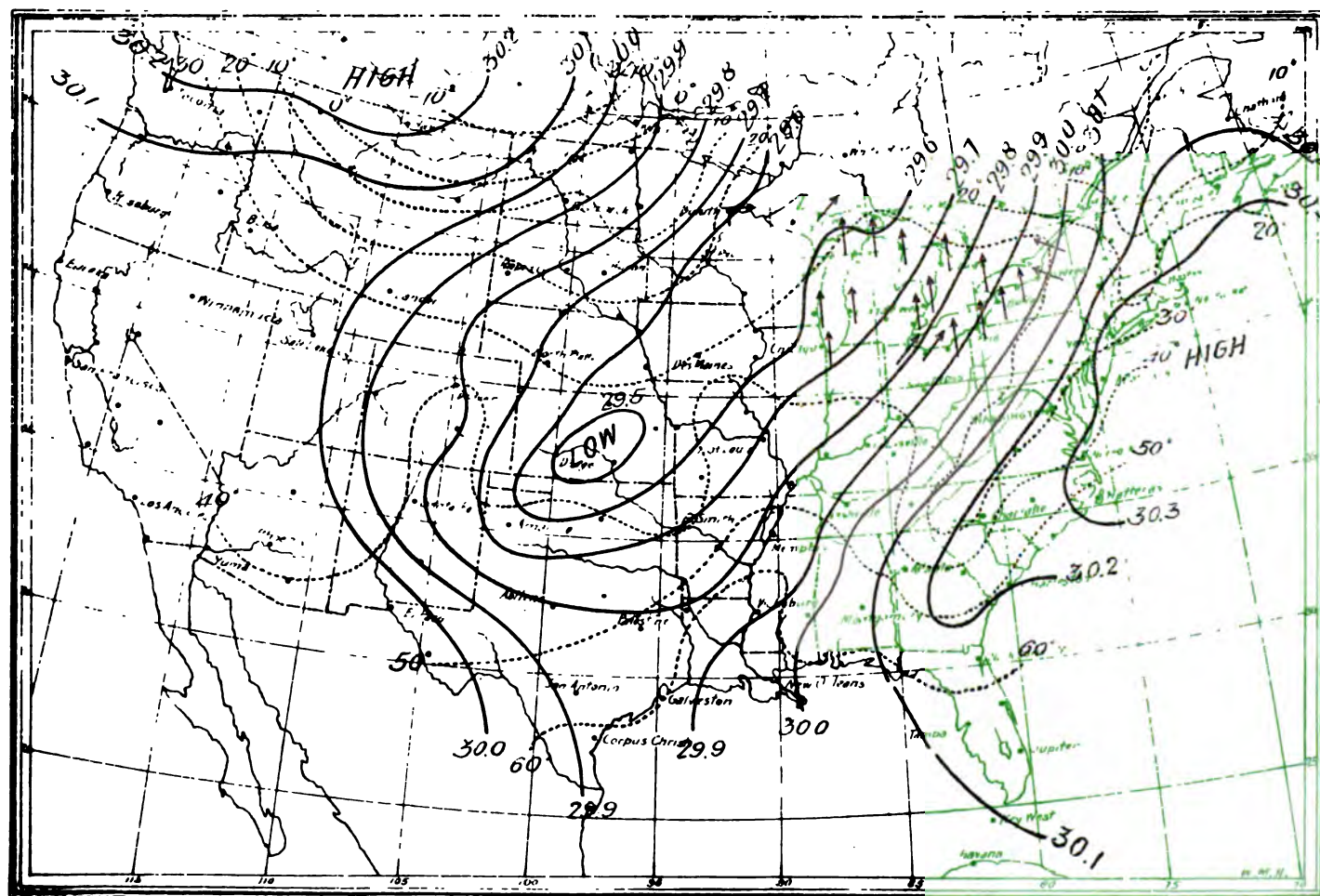
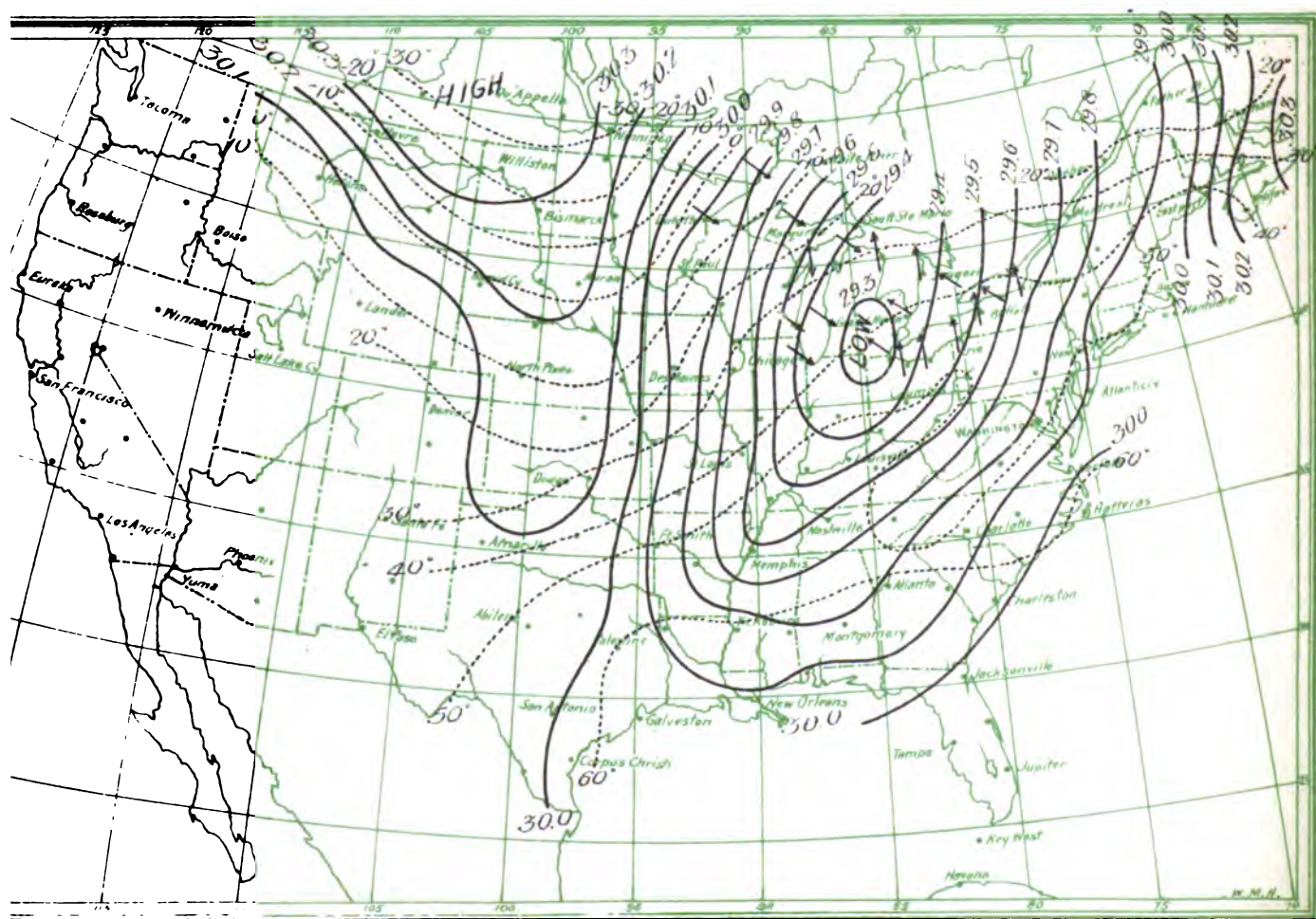
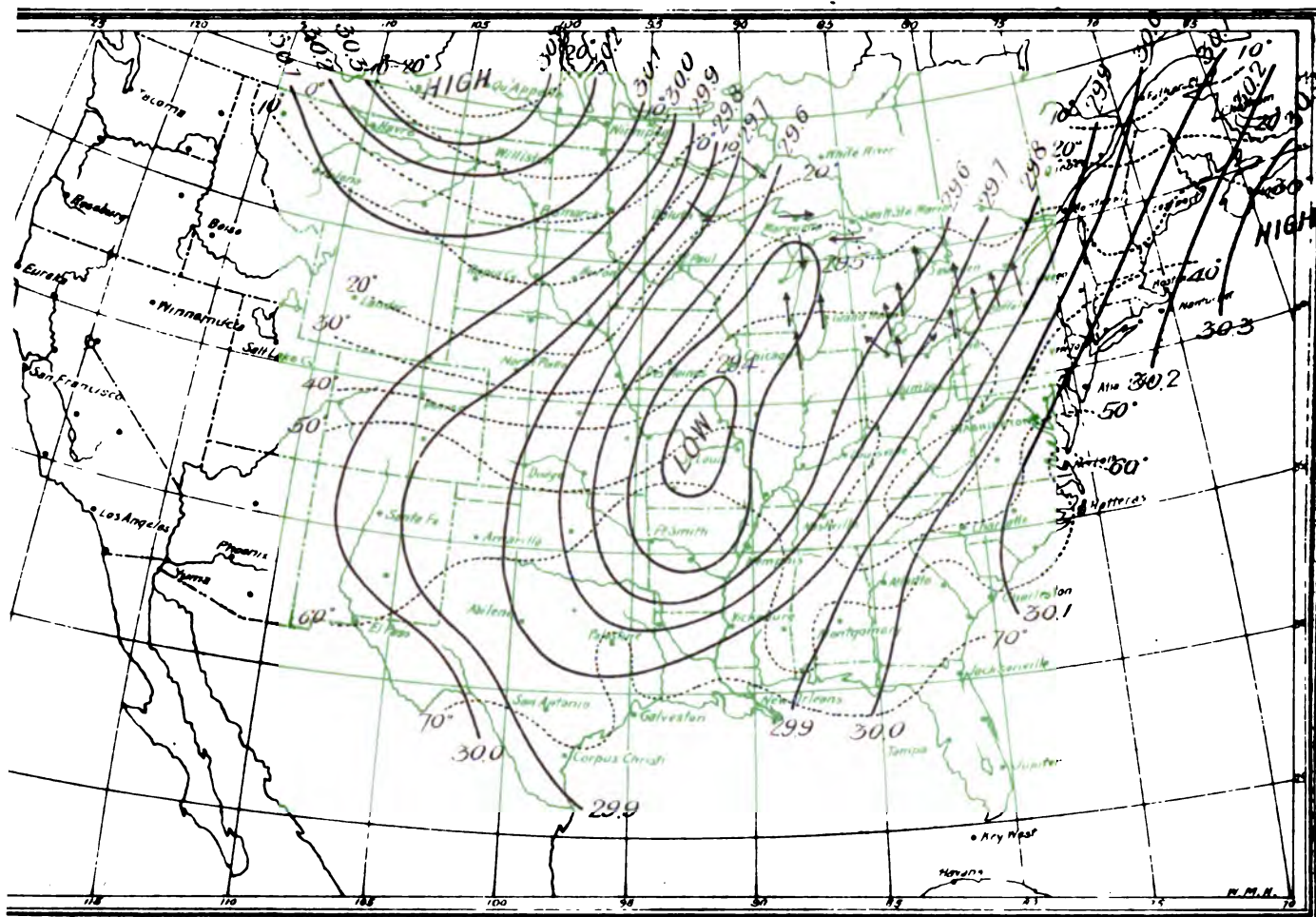


Chart XXX.

January 11, 1885—7 a. m.





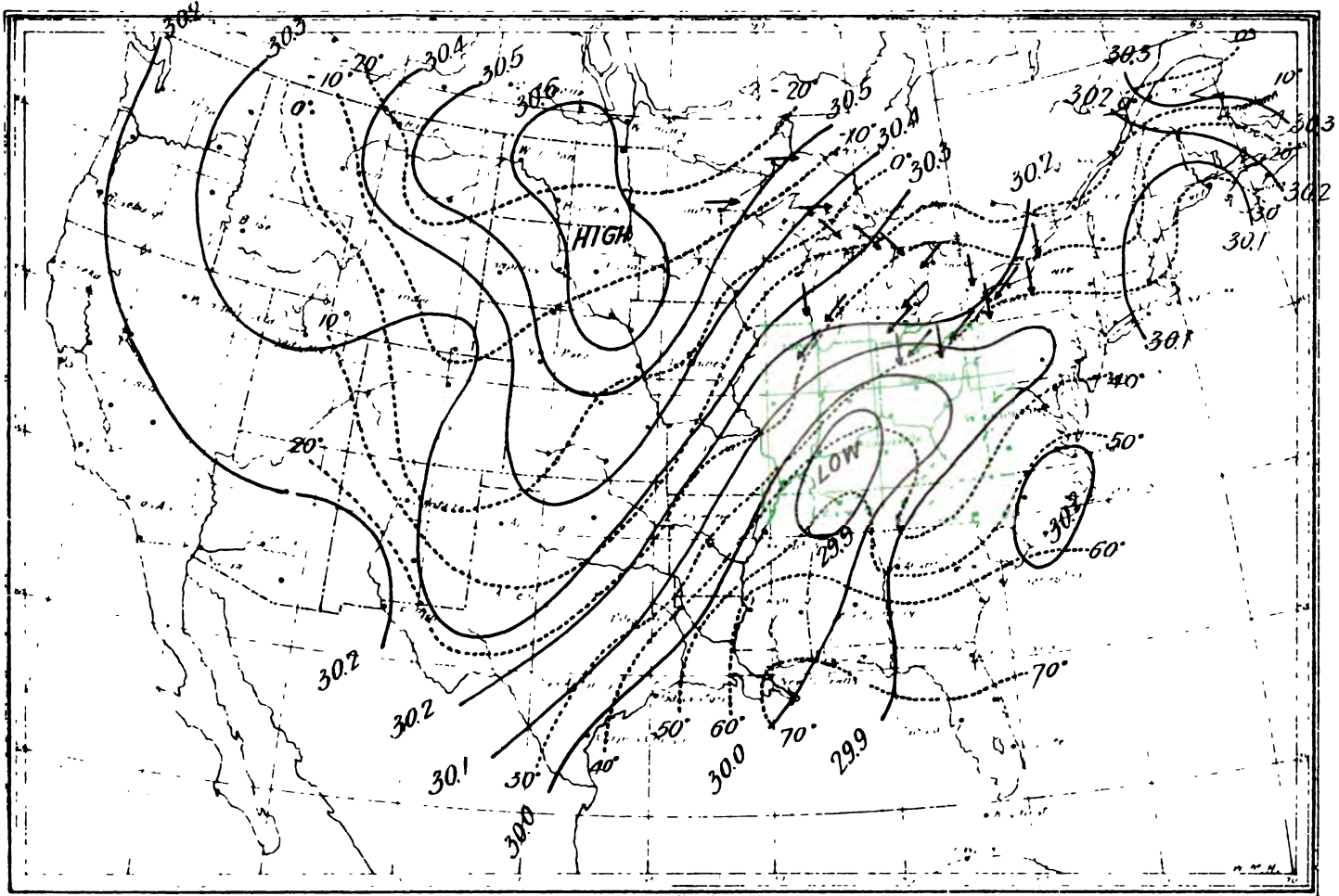


Chart XXXIV.

January 16, 1885—7 a. m.

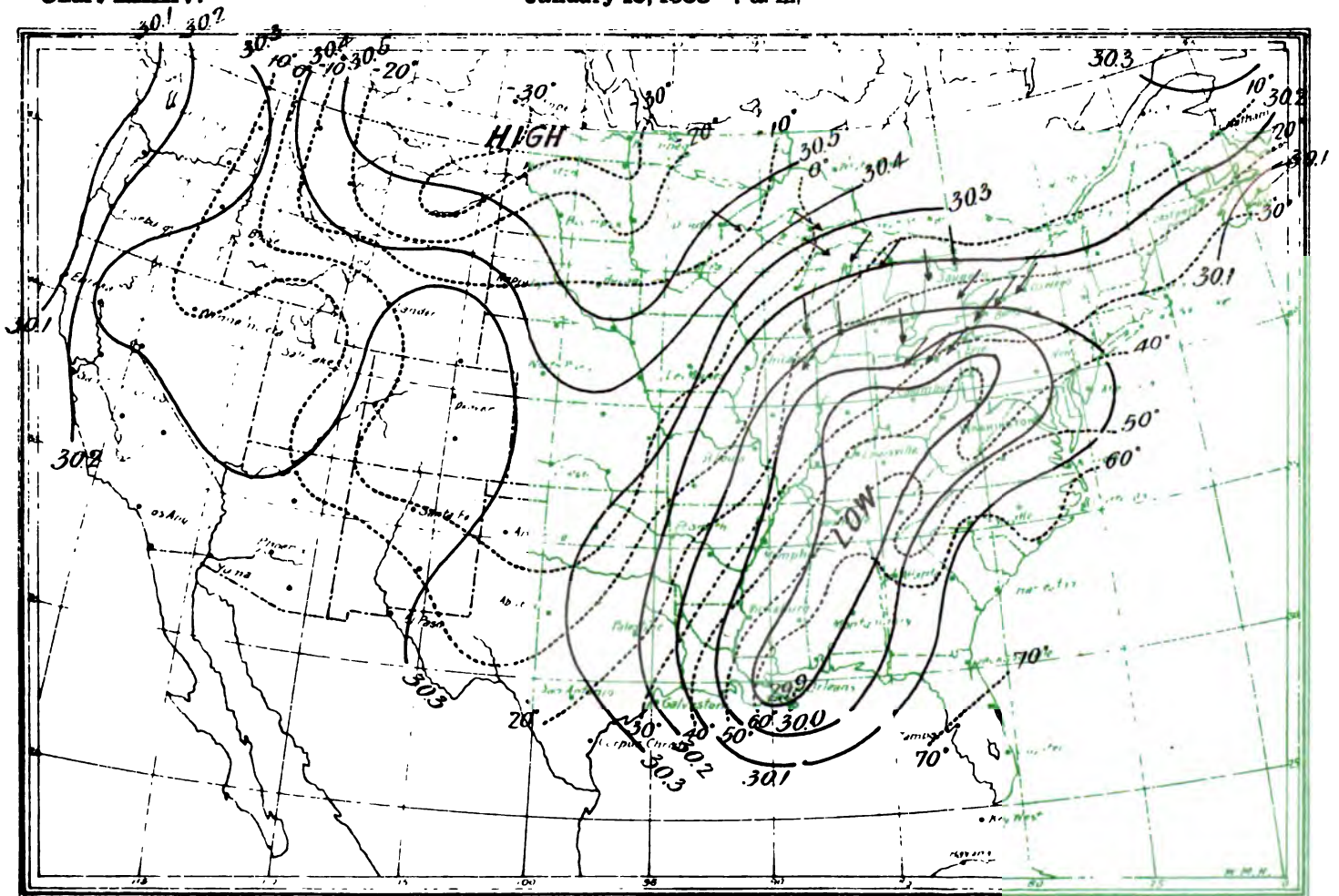


Chart XXXV.

January 16, 1885—3 p. m.

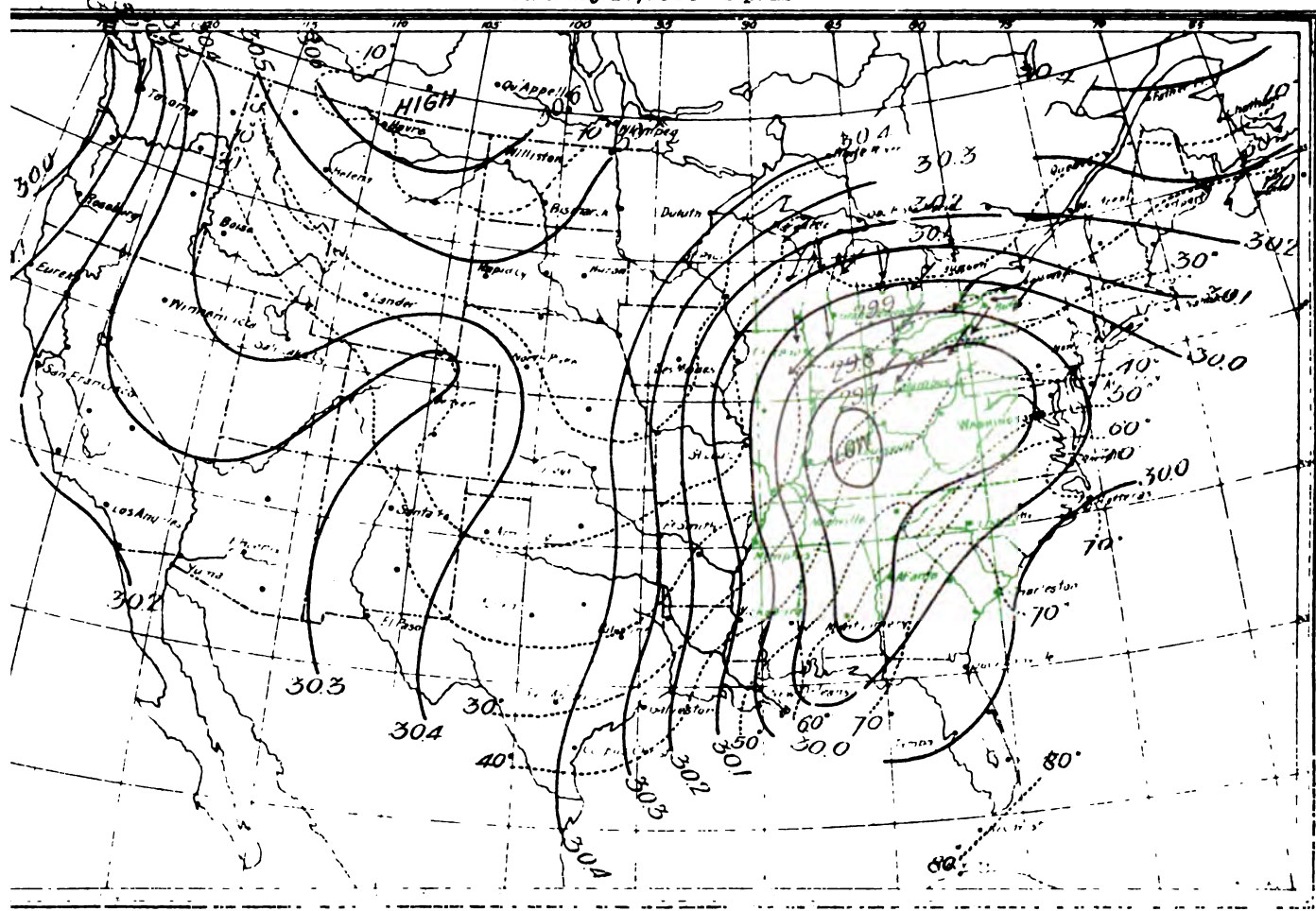


Chart XXXVI.

January 16, 1885—11 p. m.

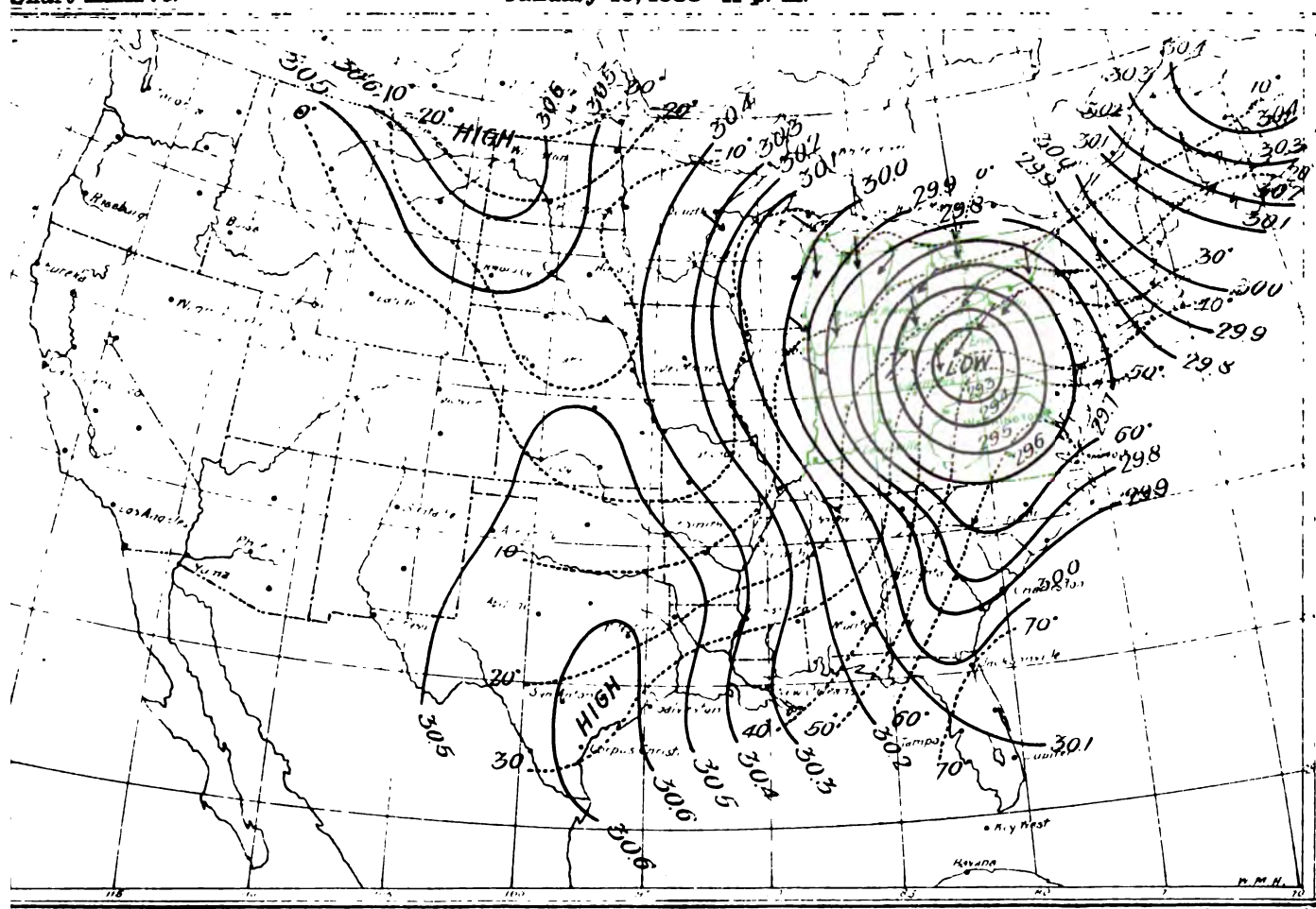


Chart XXXVII.

January 8, 1886—7 a. m.

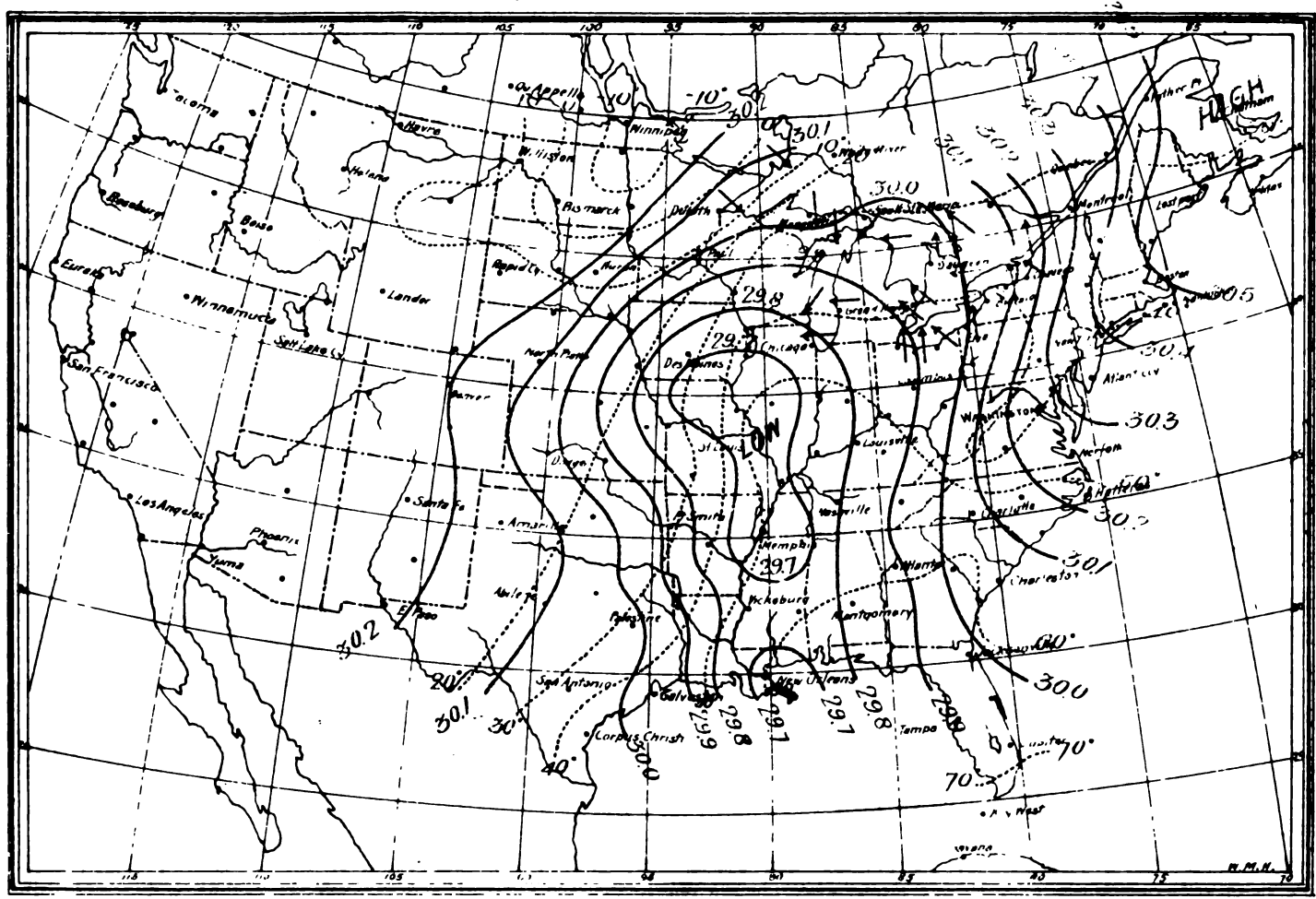


Chart XXXVIII

January 8, 1886—11 p. m.

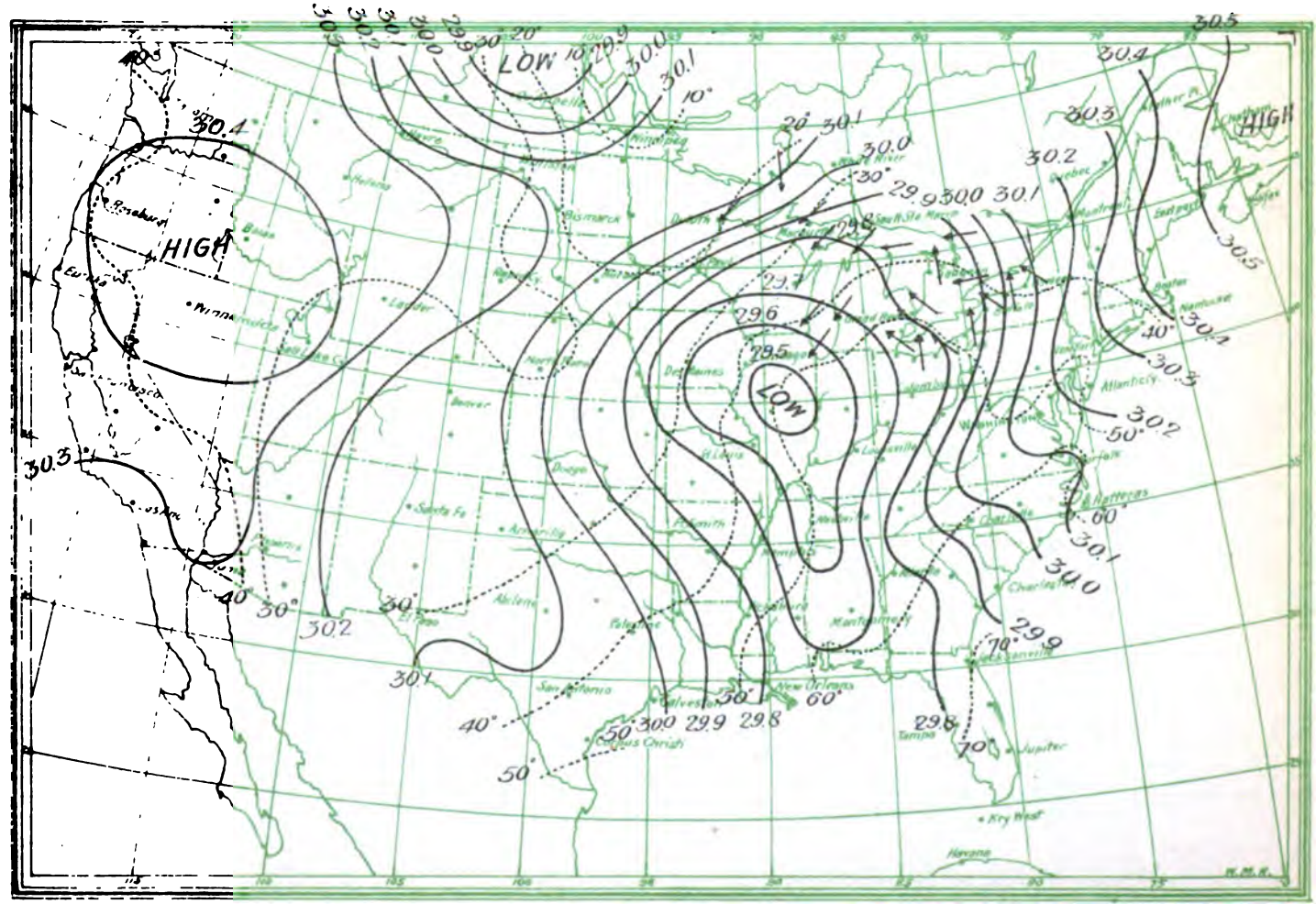


Chart XXXIX.

January 4, 1886—7 a. m.

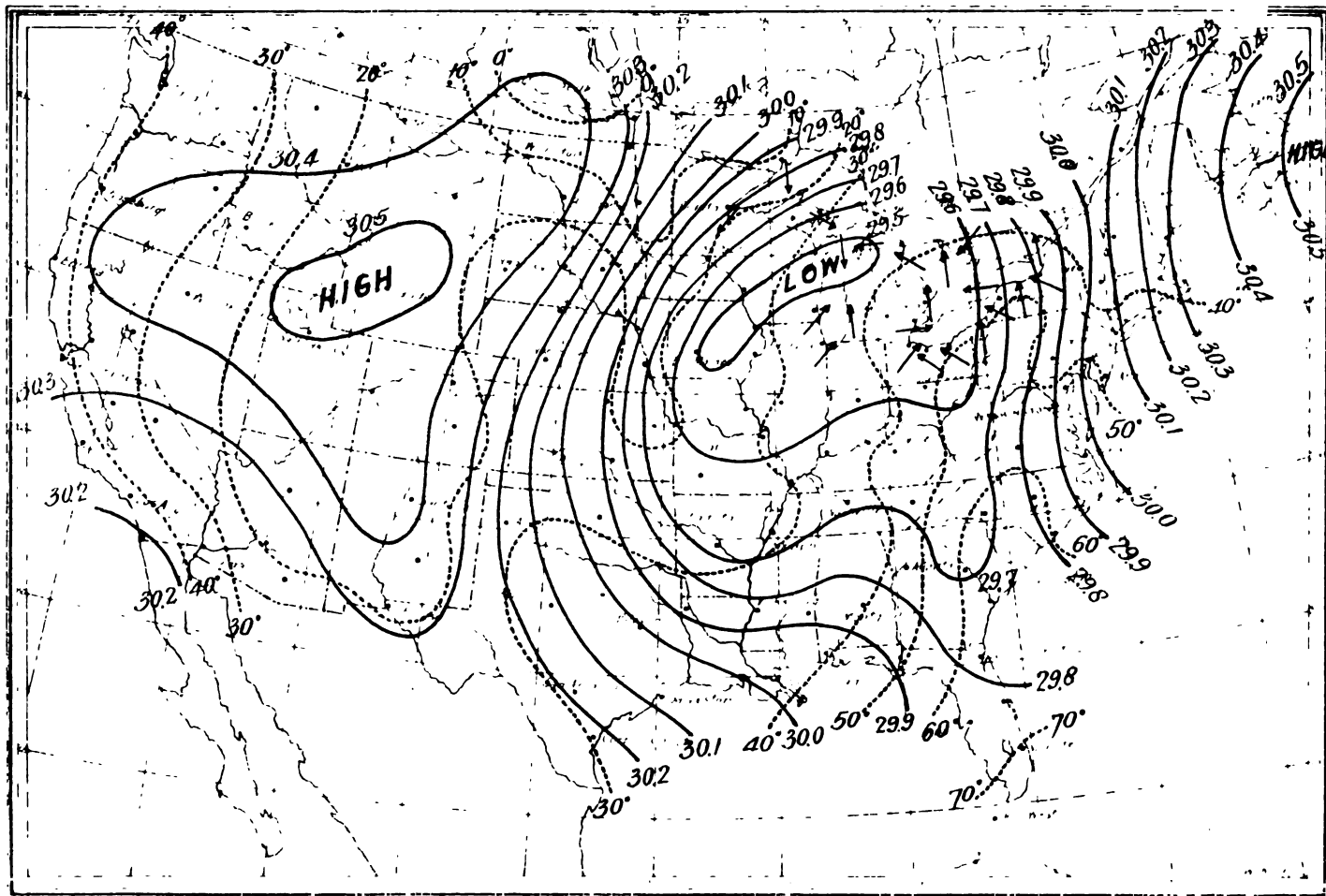


Chart XL.

January 4, 1886—3 p. m.

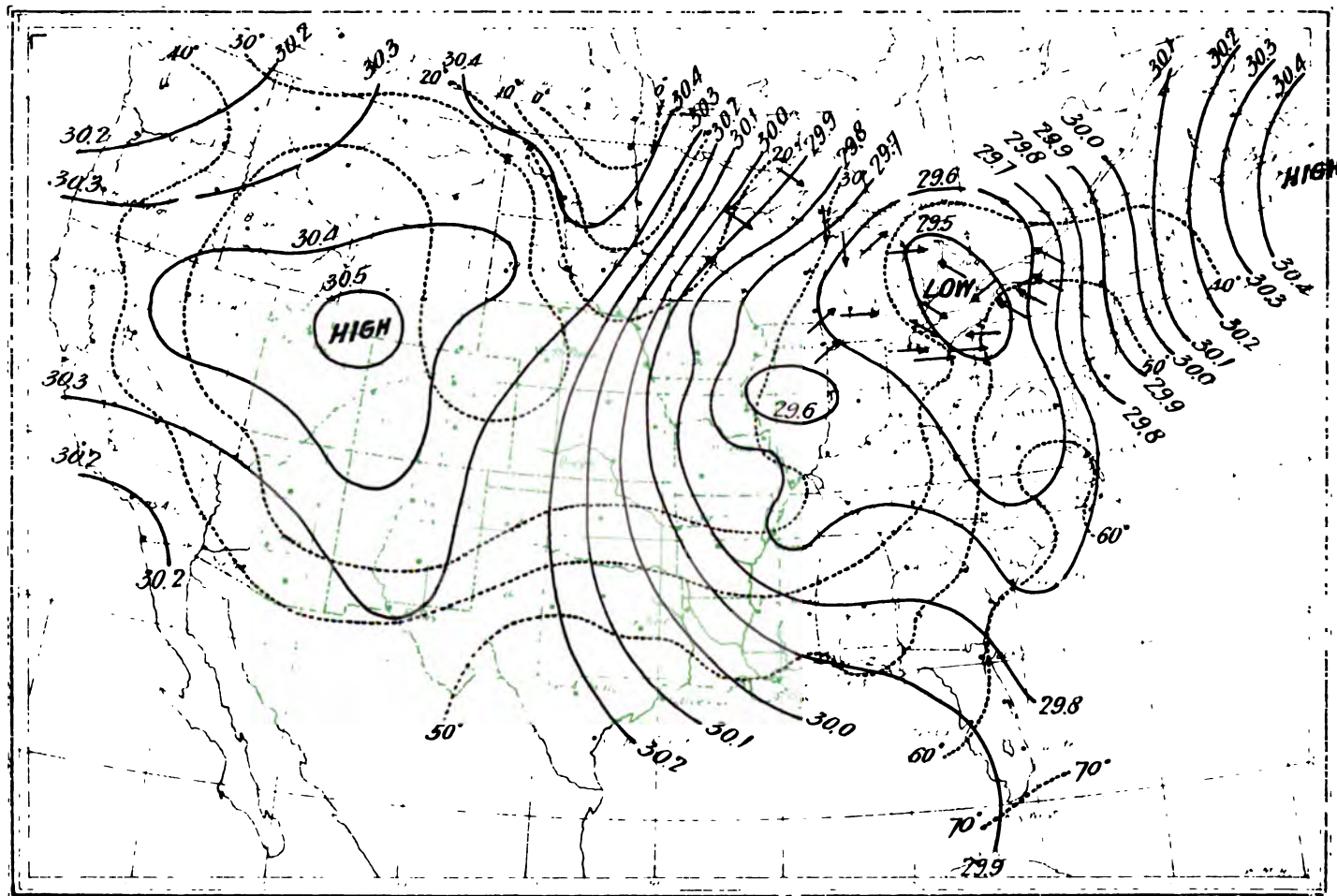


Chart XLI.

January 16, 1887—7 a. m.

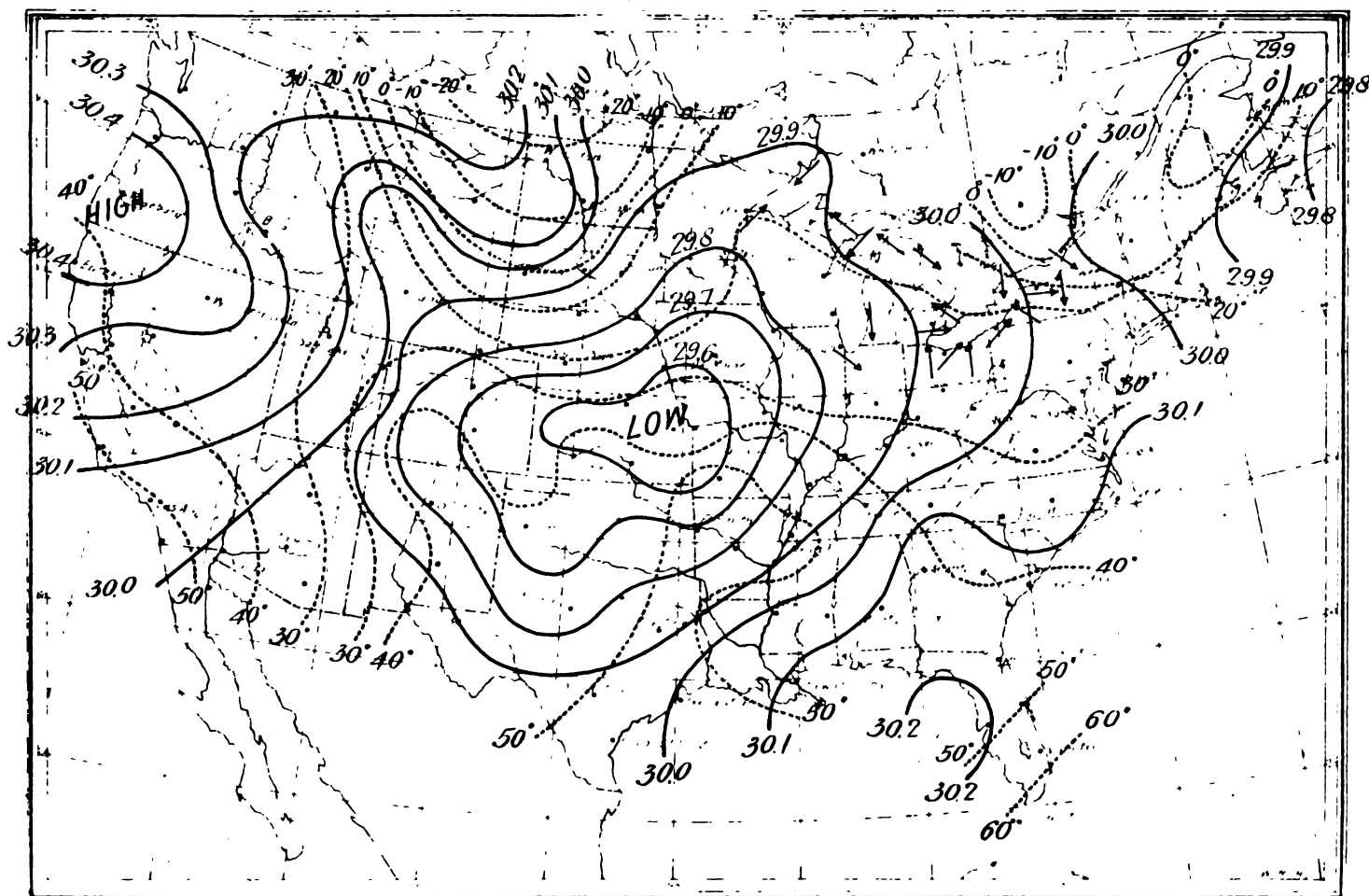


Chart XLII.

January 16, 1887—3 p. m.

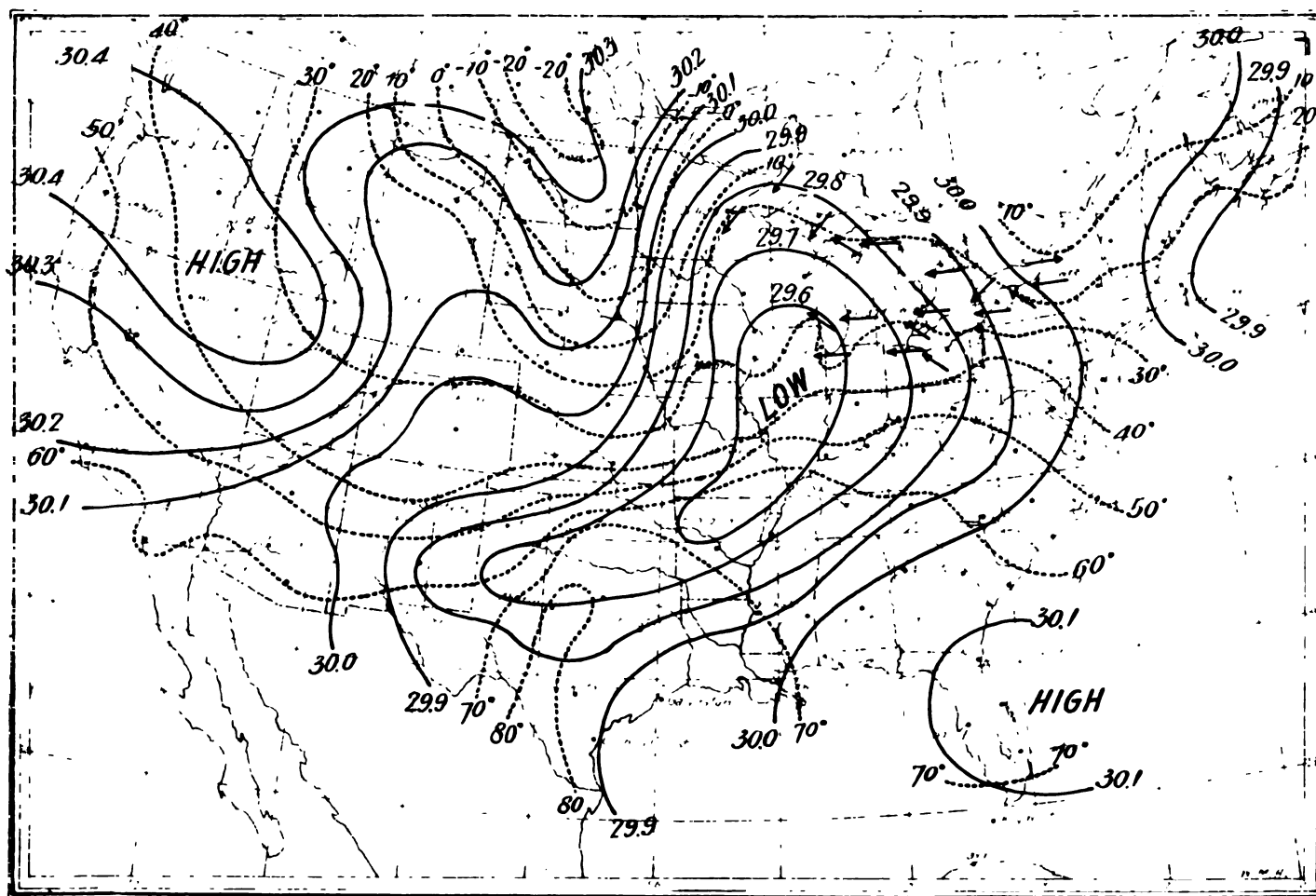


Chart XLIII.

January 16, 1887—11 p. m.

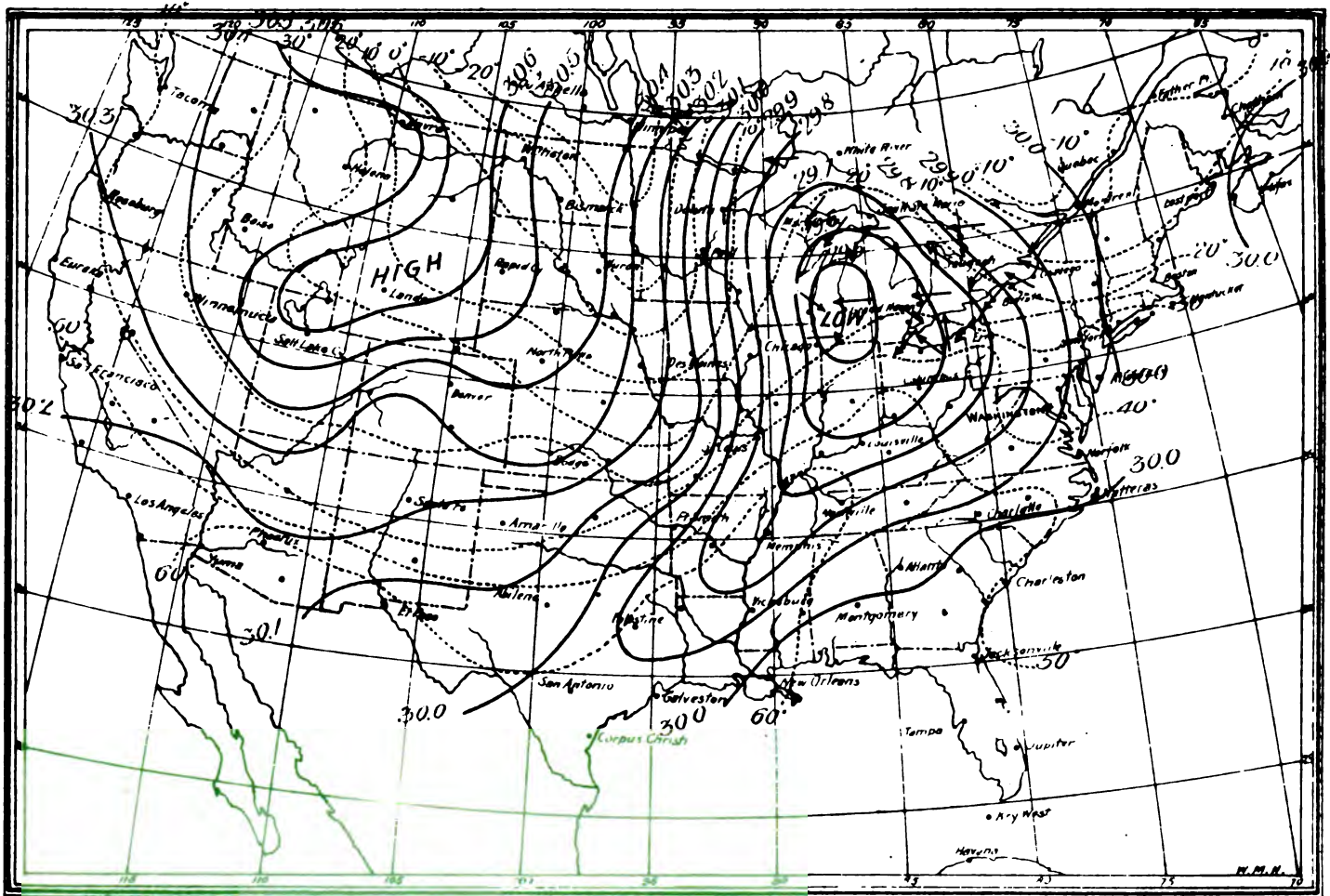


Chart XLIV.

January 17, 1887—7 a. m.

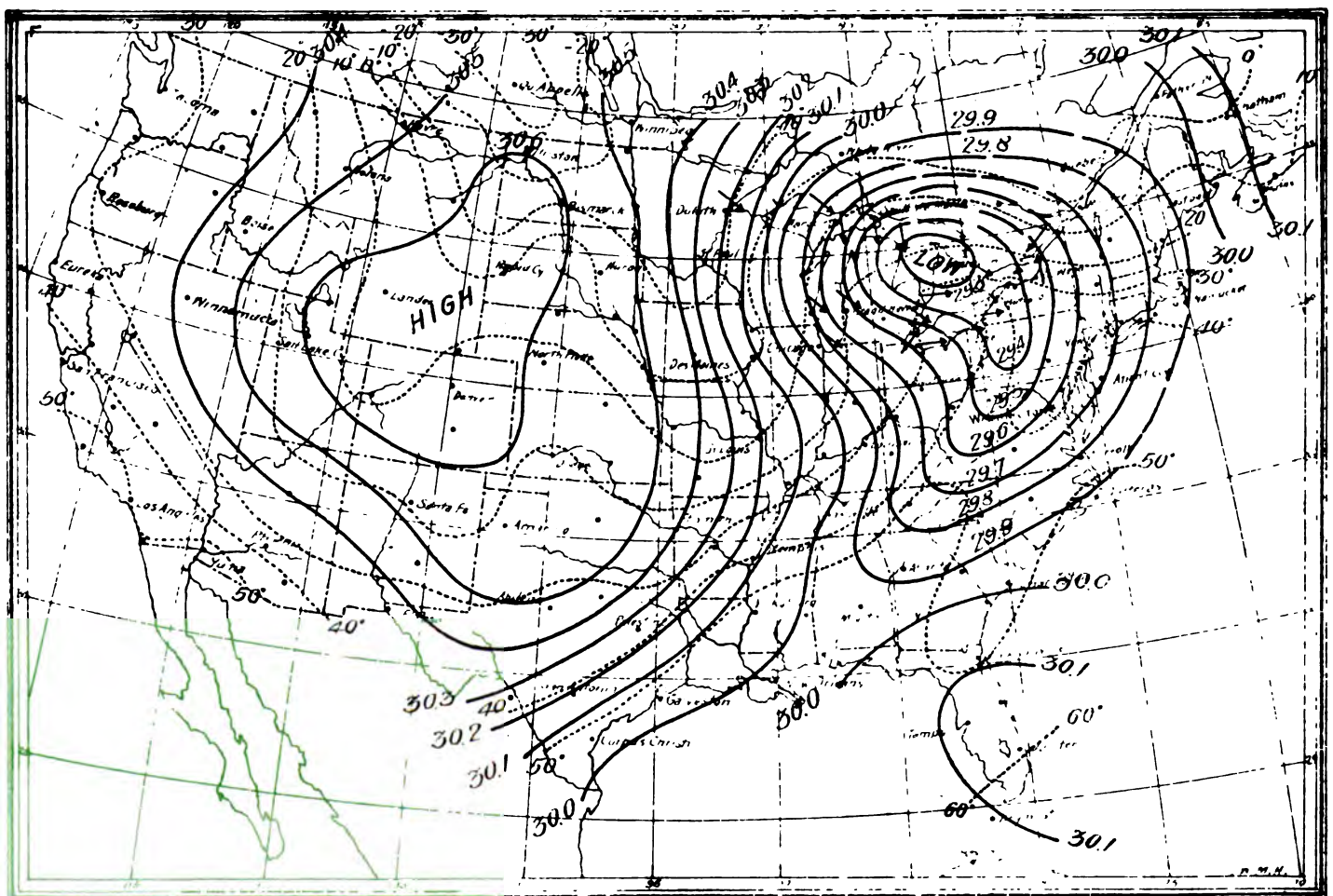


Chart XLV.

January 8, 1889—8 a. m.

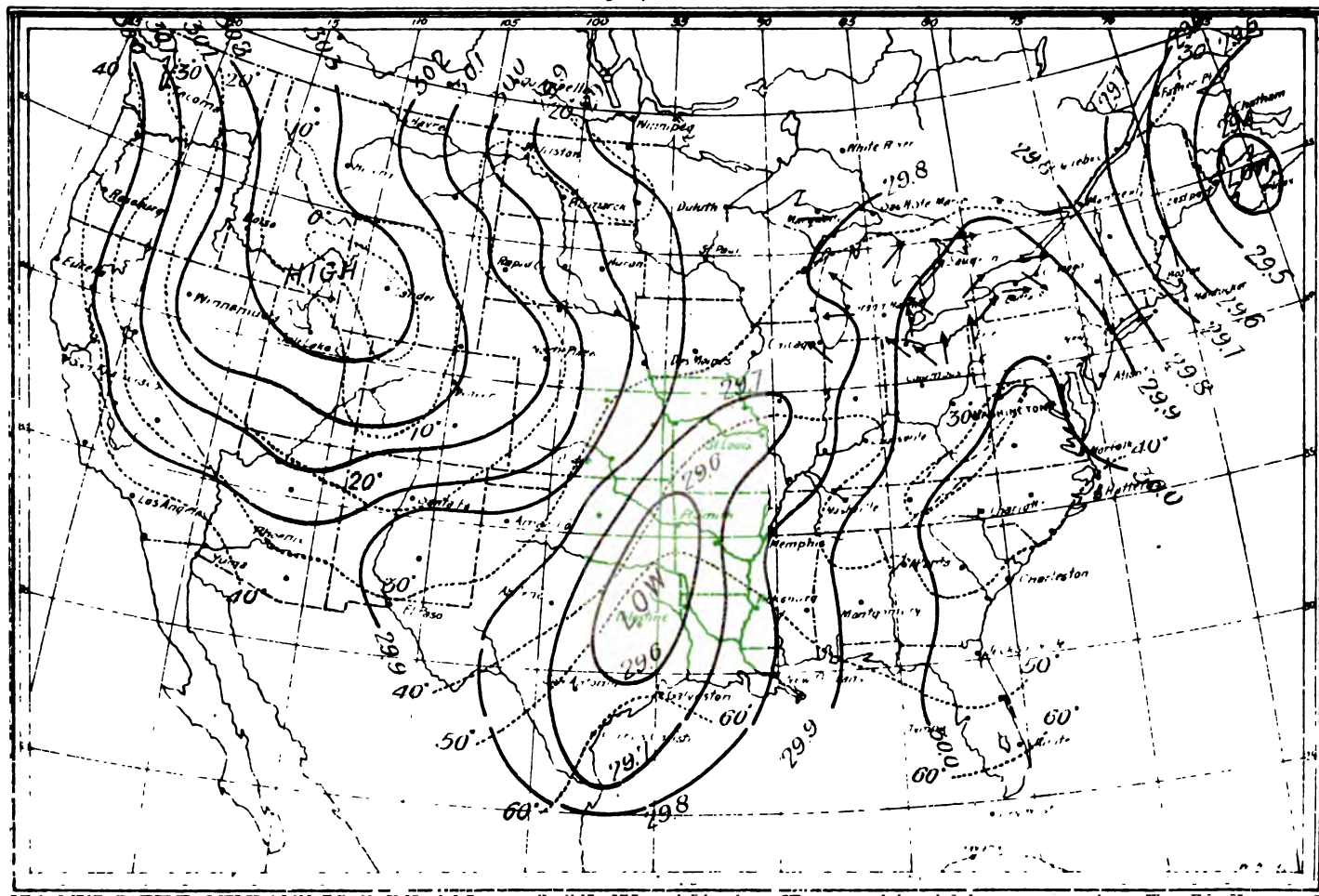
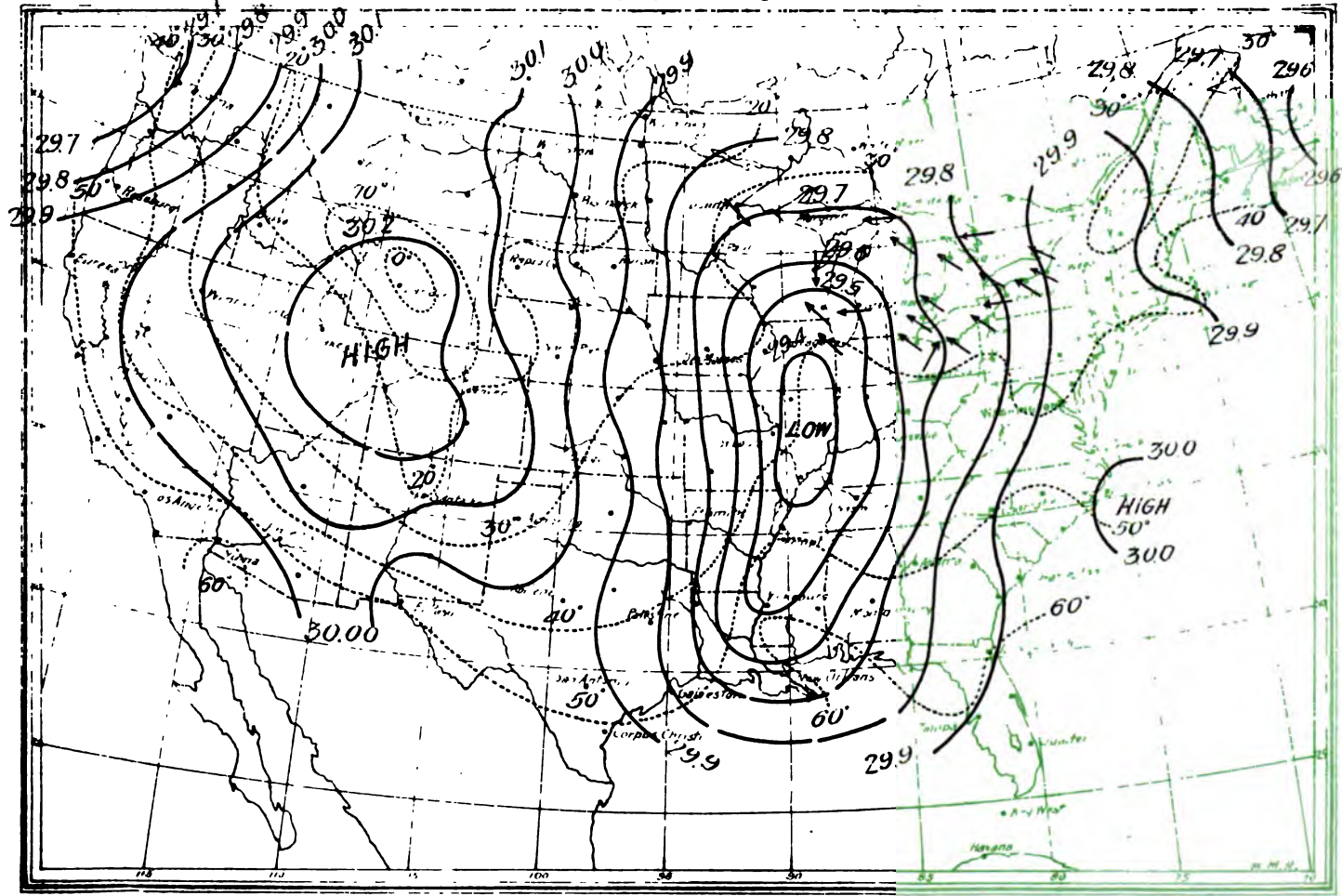


Chart XLVI.

January 8, 1889—8 p. m.



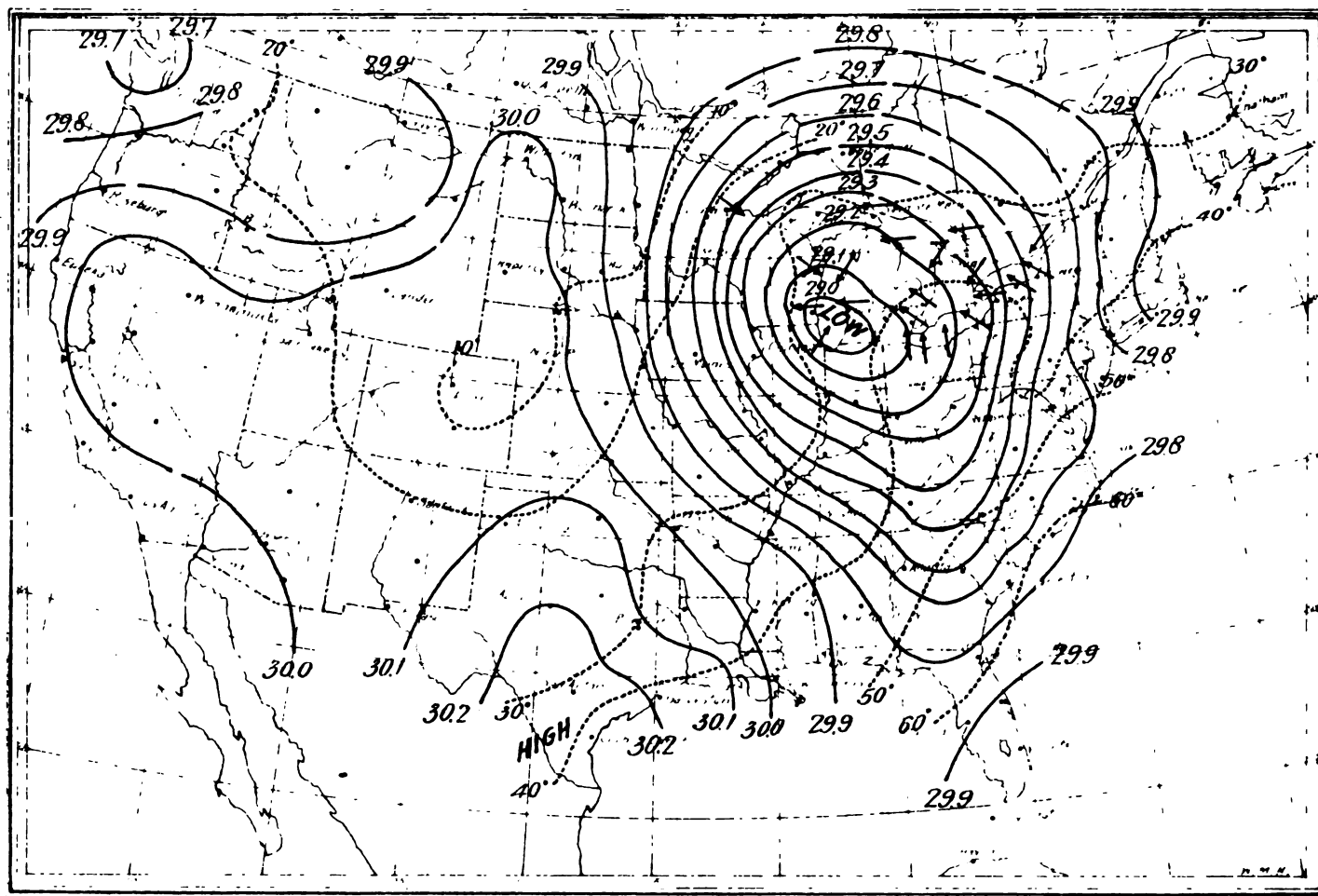
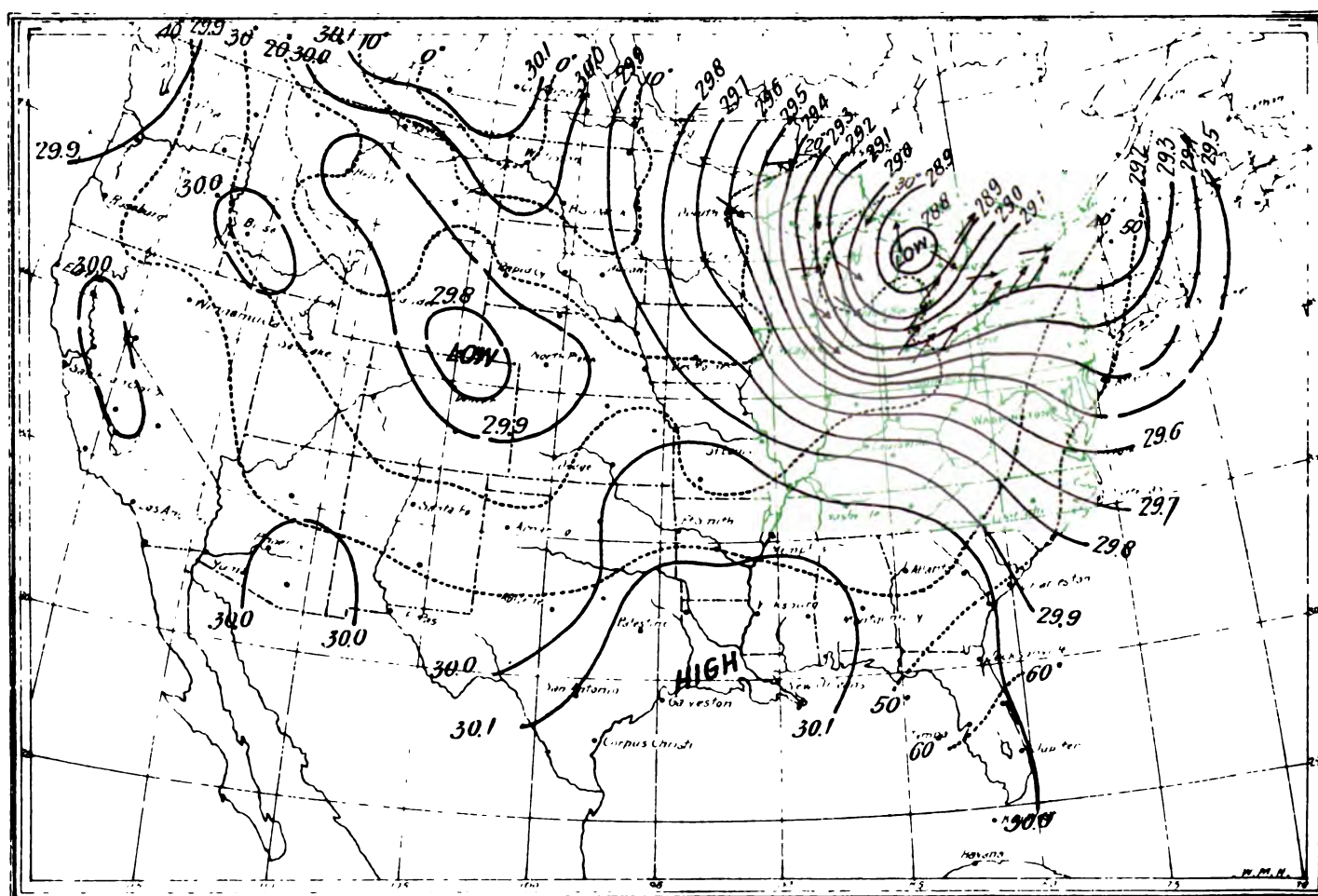


Chart XLVIII.

January 9, 1889—8 p. m.



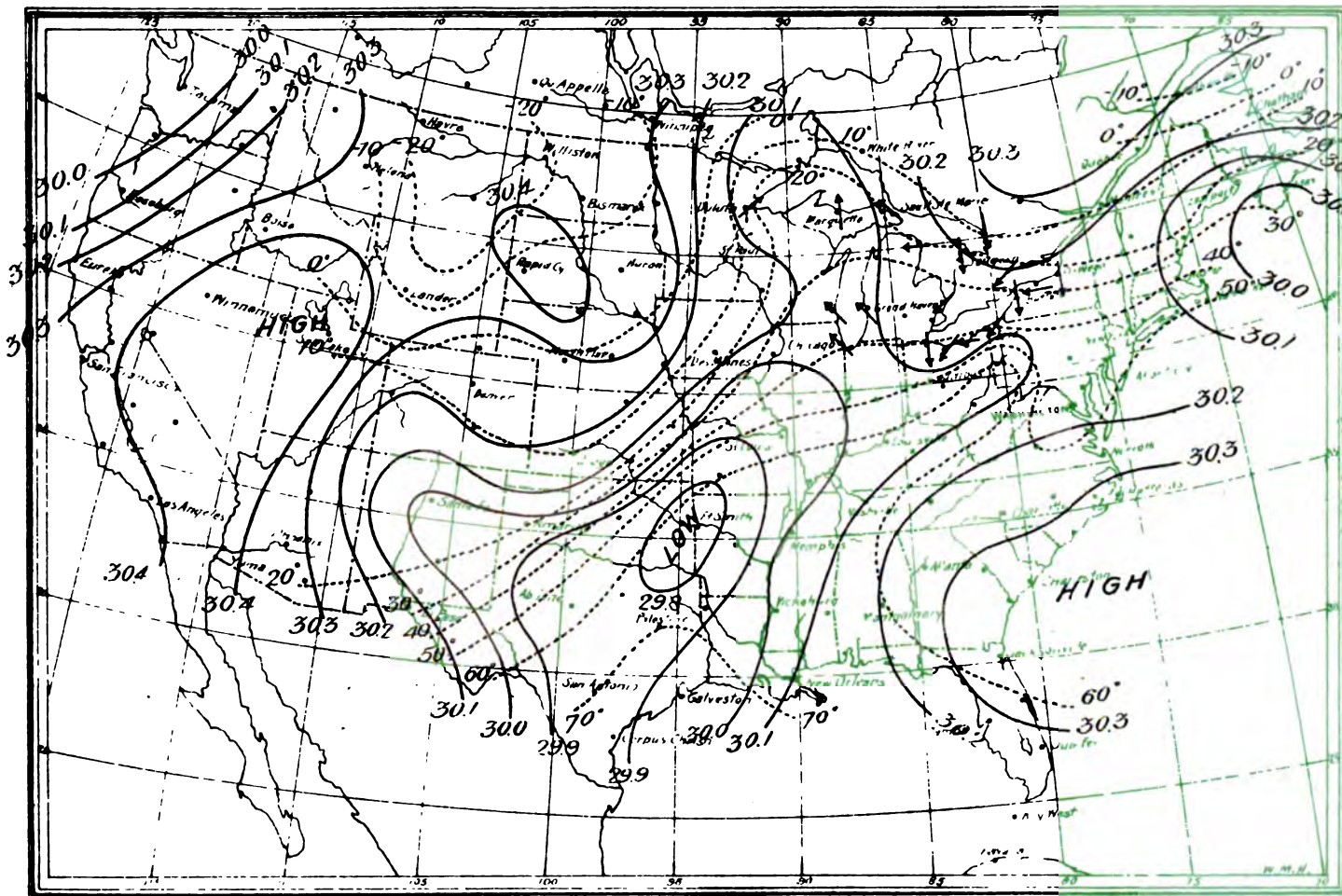


Chart L.

January 12, 1890—8 p. m.

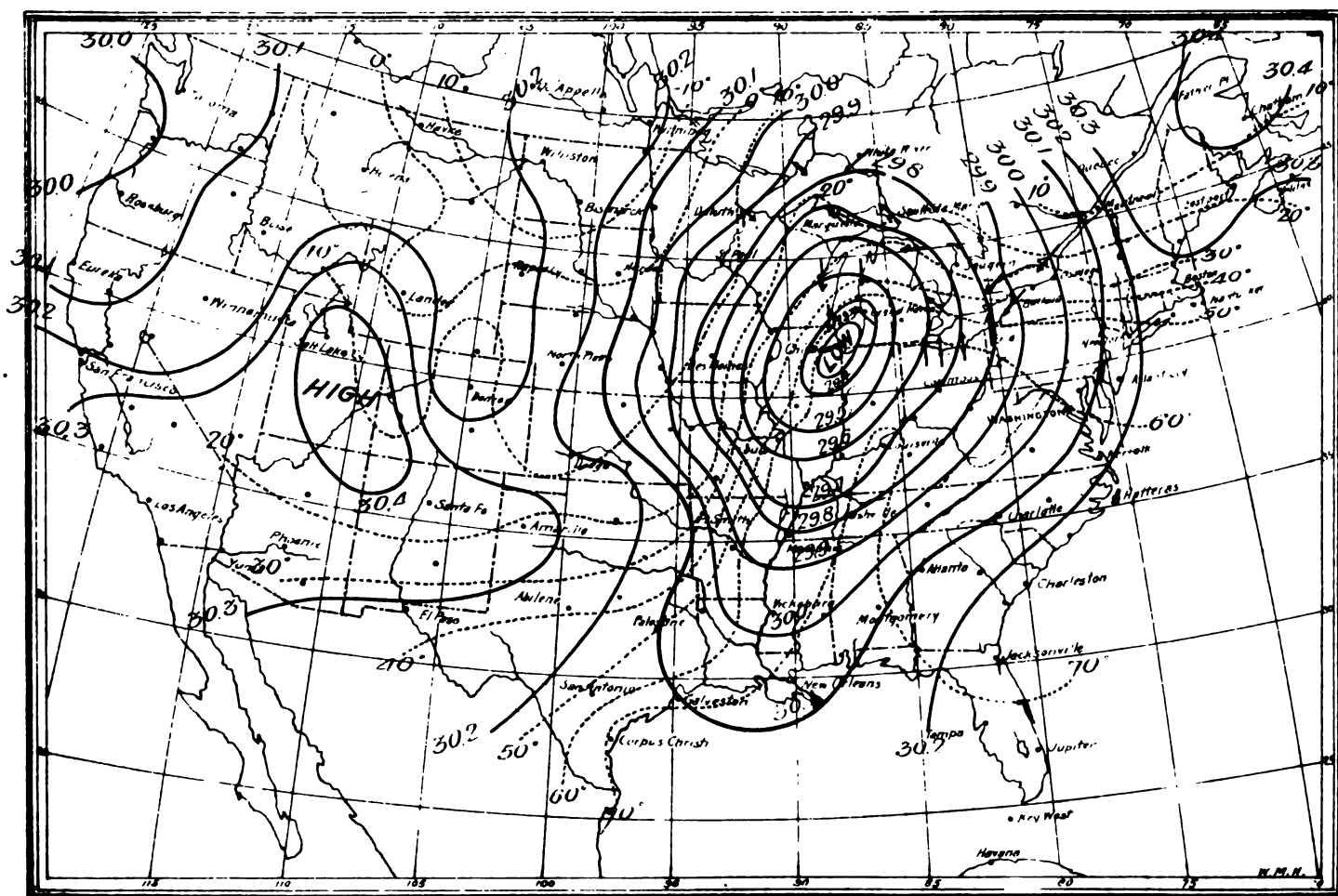


Chart LI.

January 13, 1890—8 a. m.

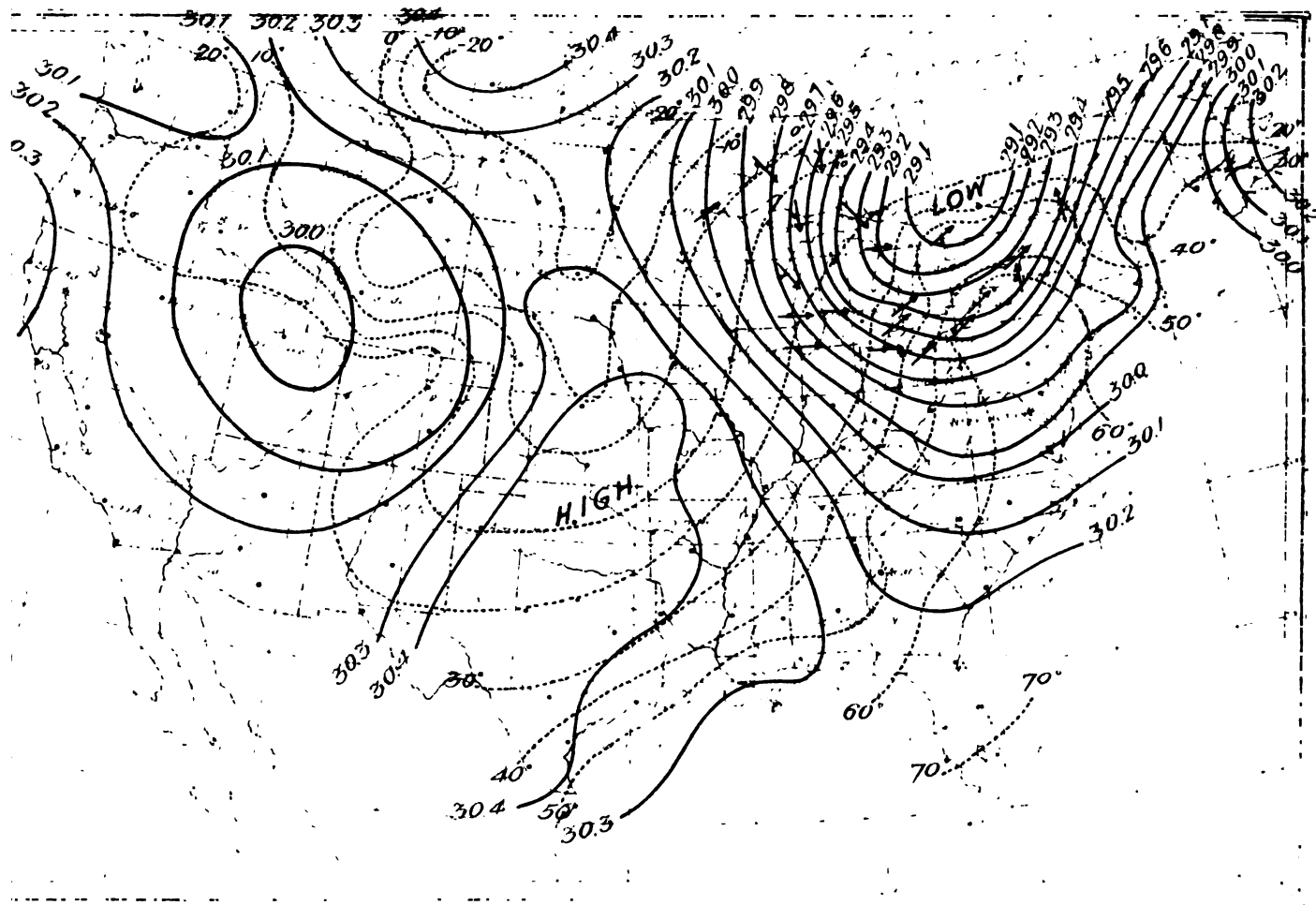


Chart LII.

January 13, 1890—8 p. m.

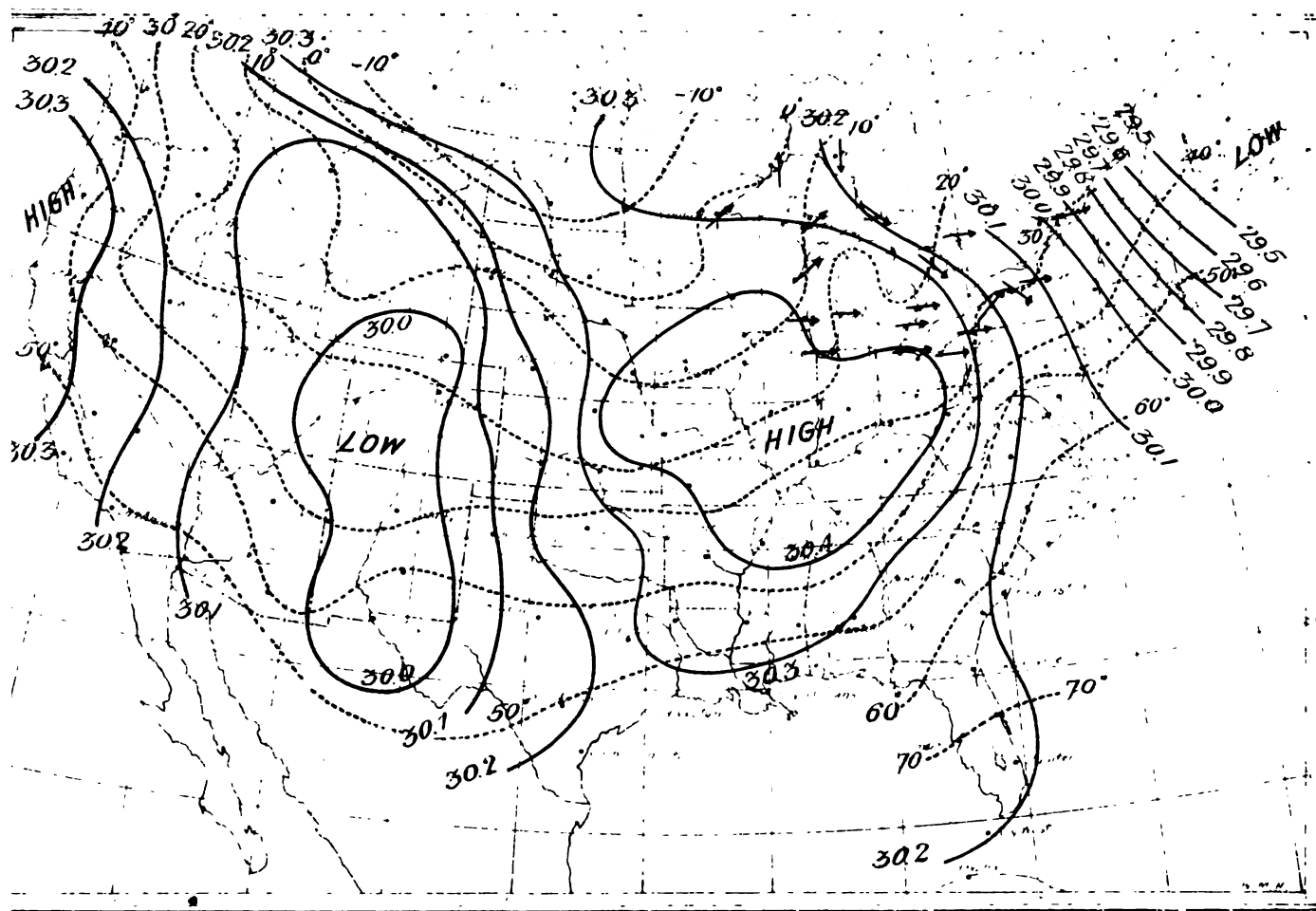


Chart LIII.

January 8, 1893—8 a. m.

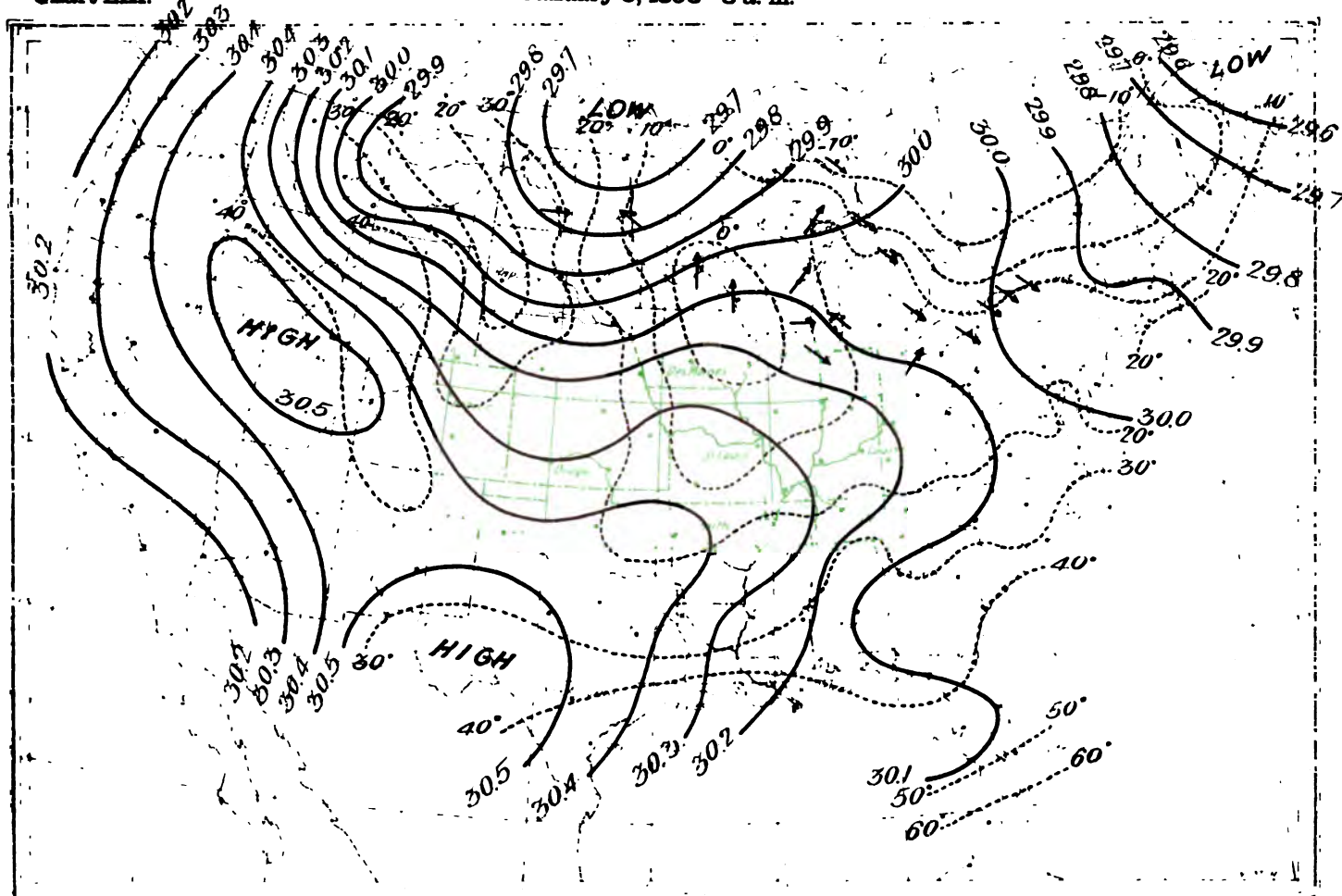
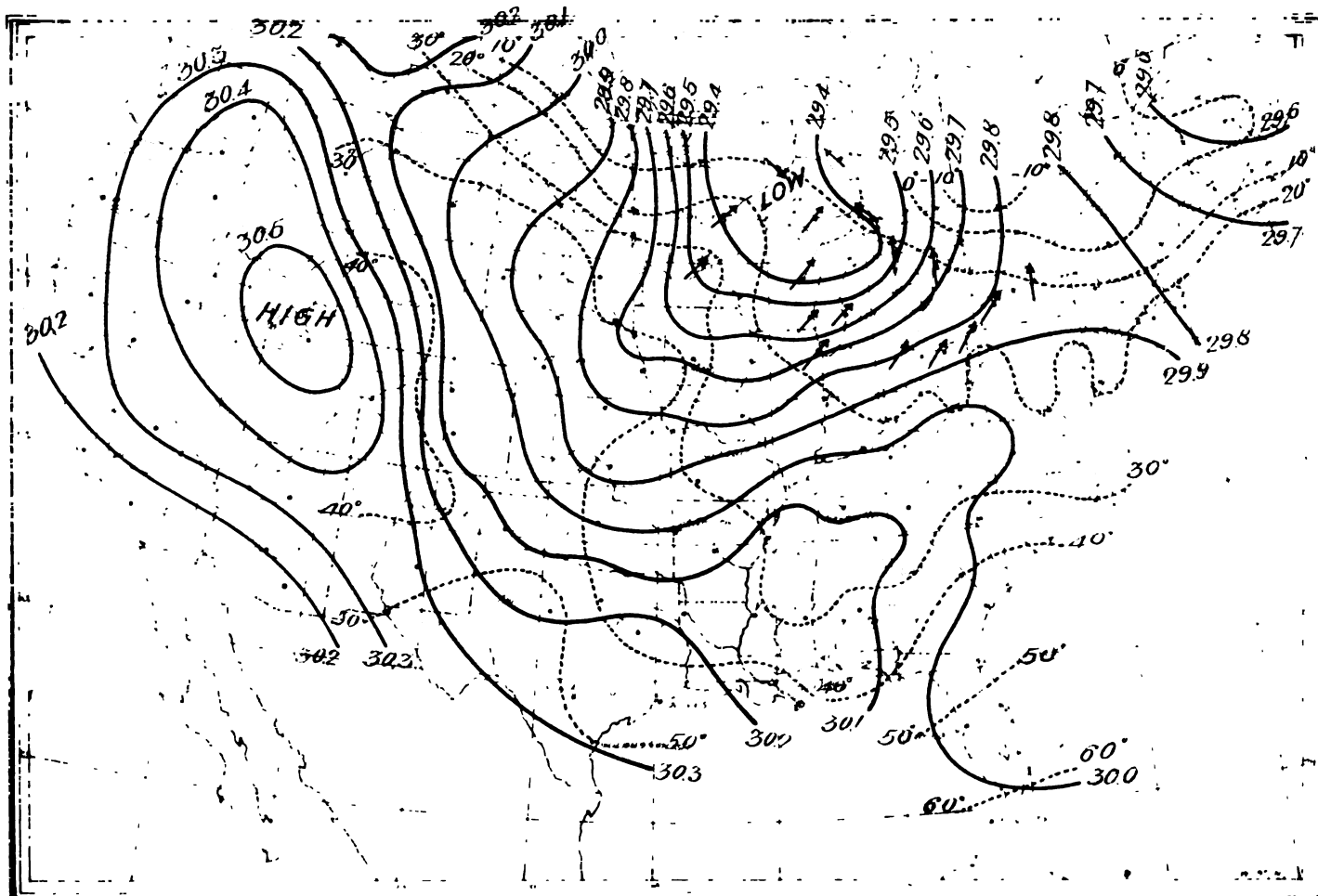
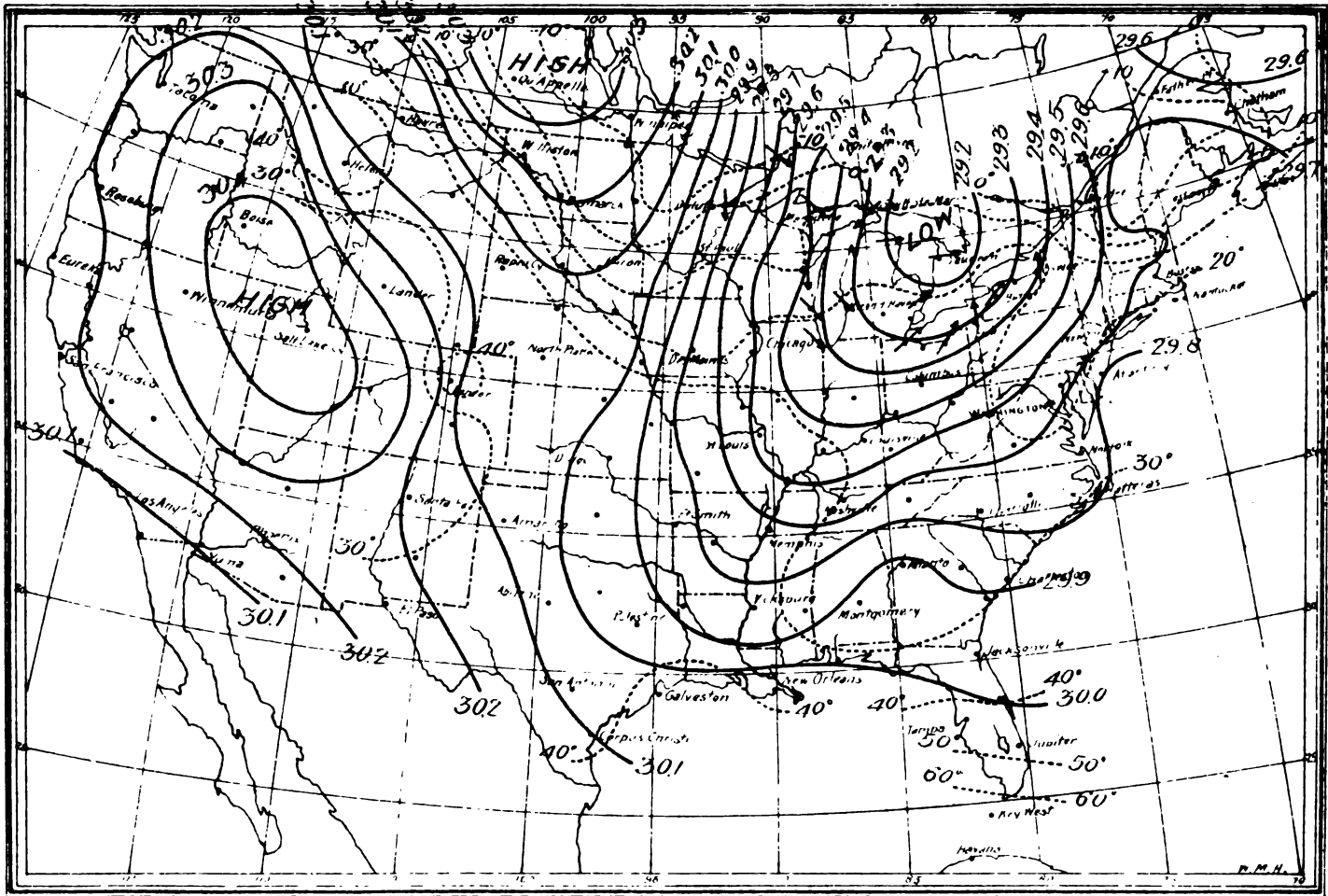


Chart LIV.

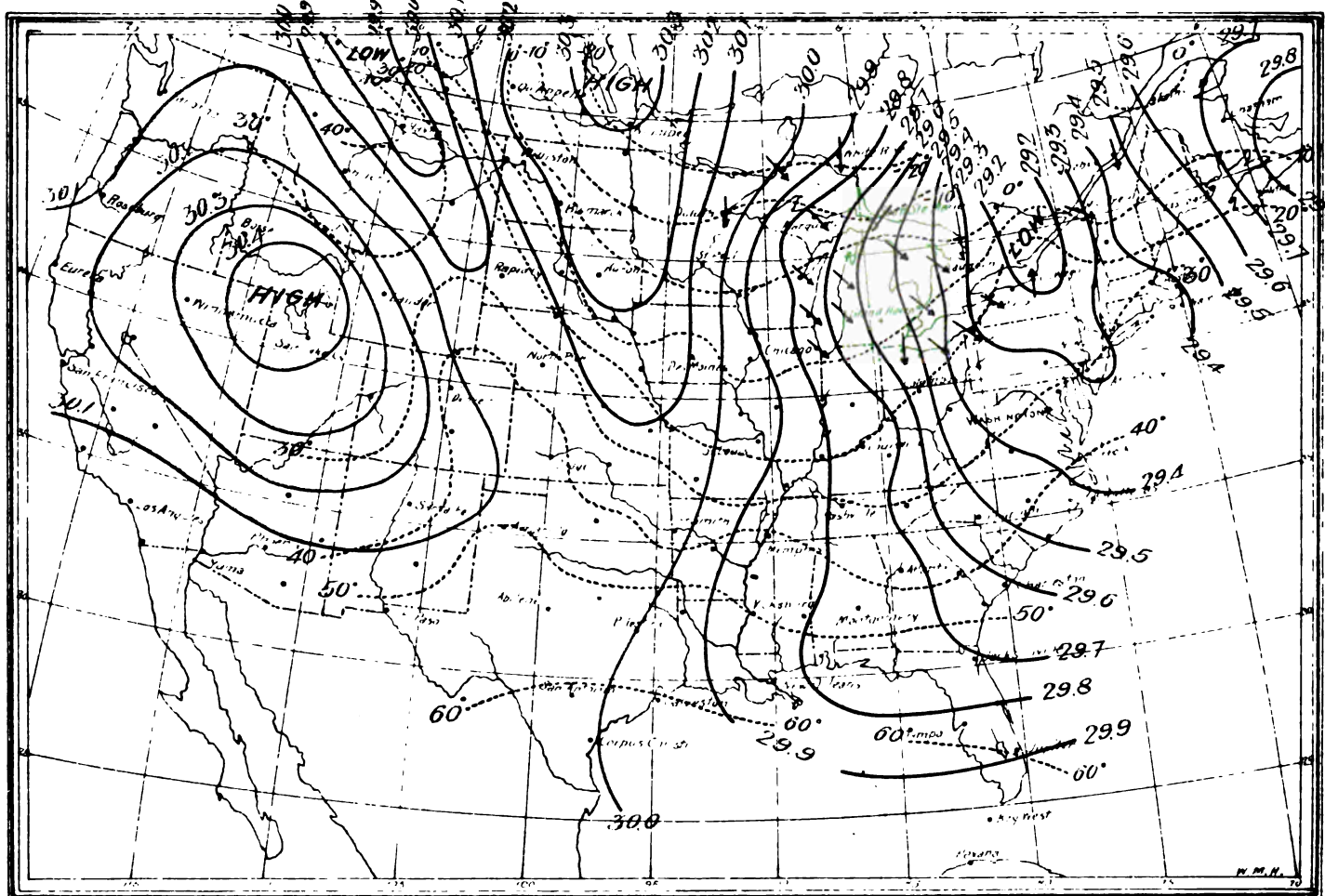
January 8, 1893—8 p. m.



January 9, 1893—8 a. m.



January 9, 1893—8 p. m.



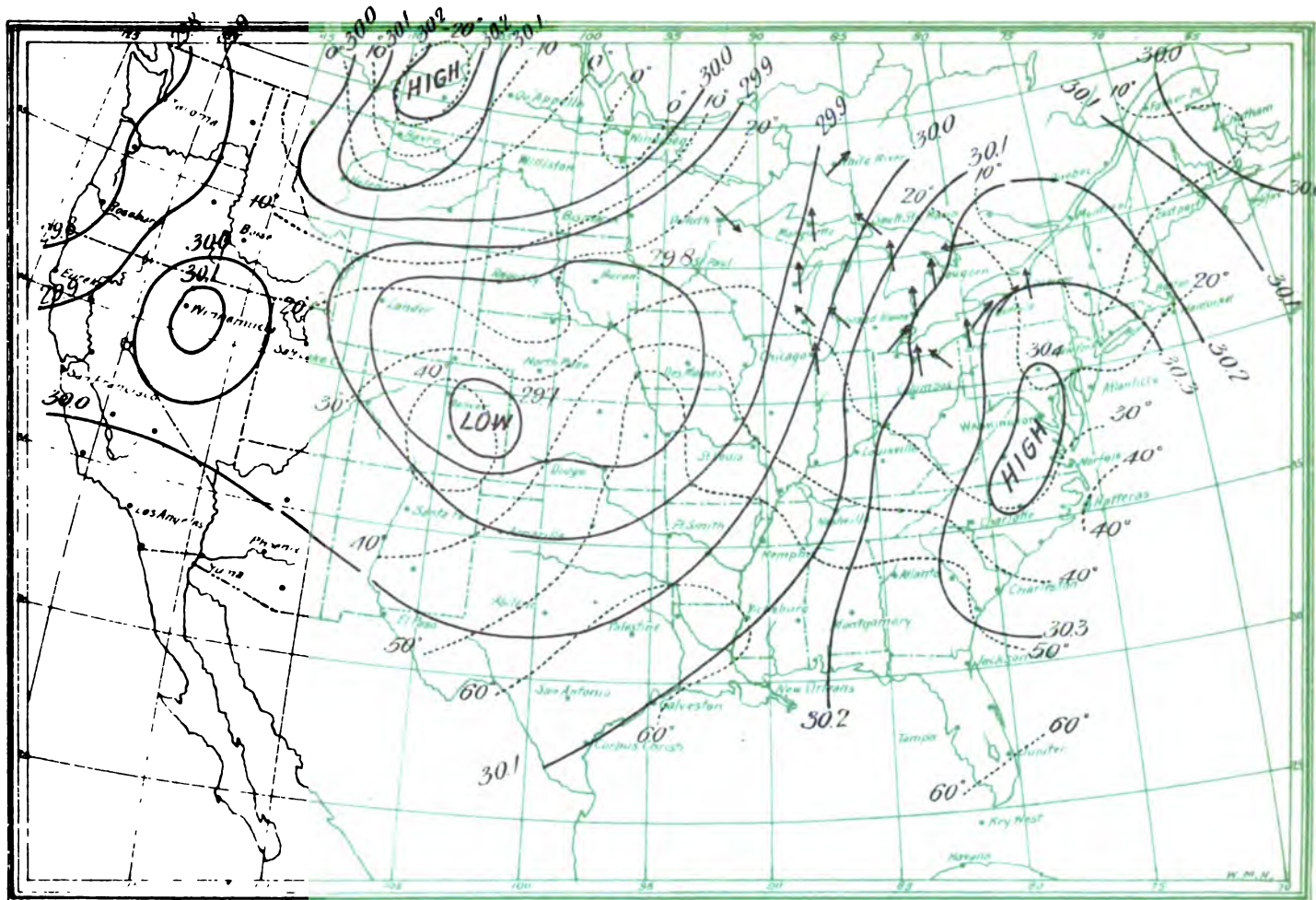


Chart LVIII.

January 20, 1895—8 p. m.

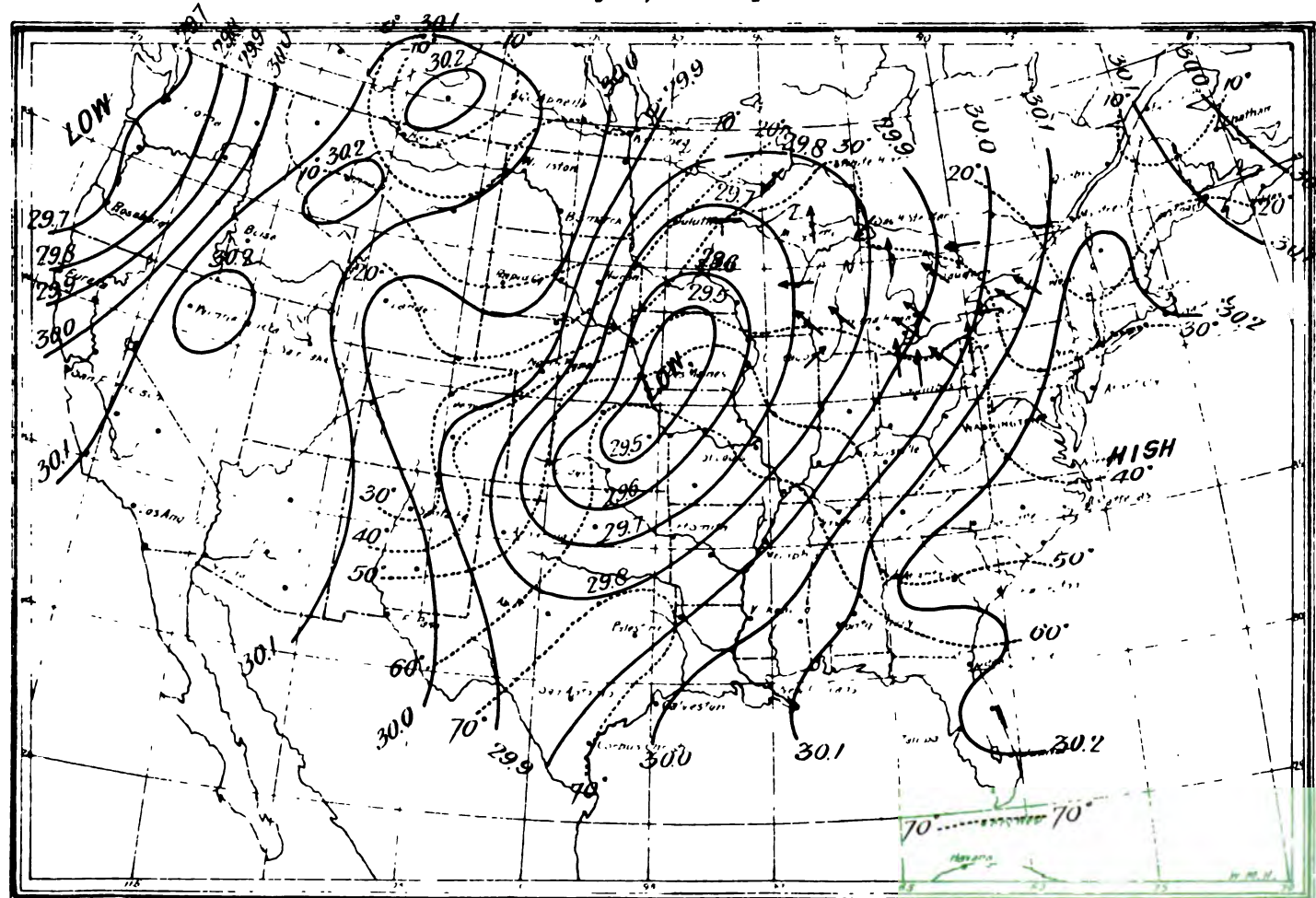


Chart LIX.

January 21, 1895—8 a. m.

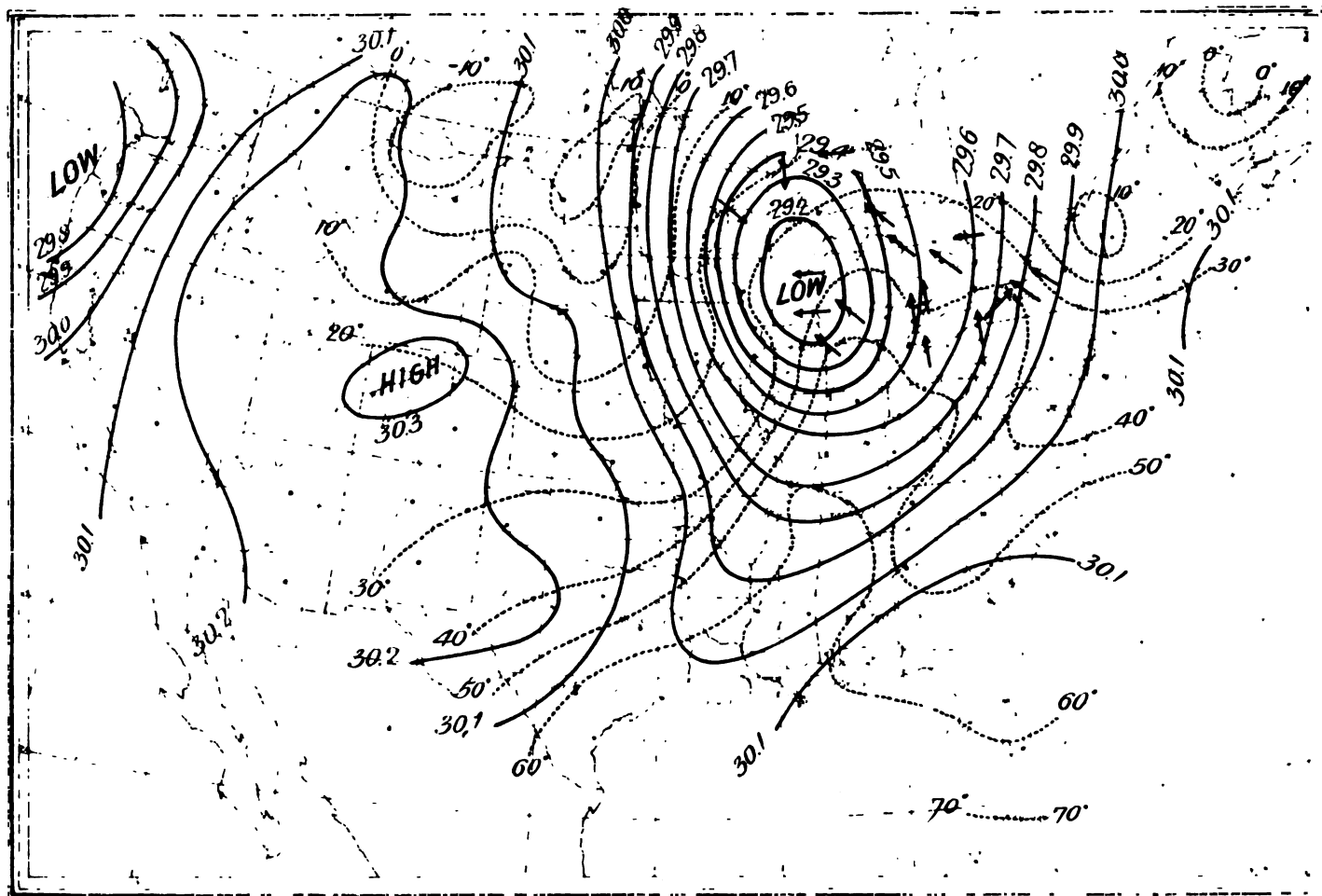


Chart LIX.

January 21, 1895—8 p. m.

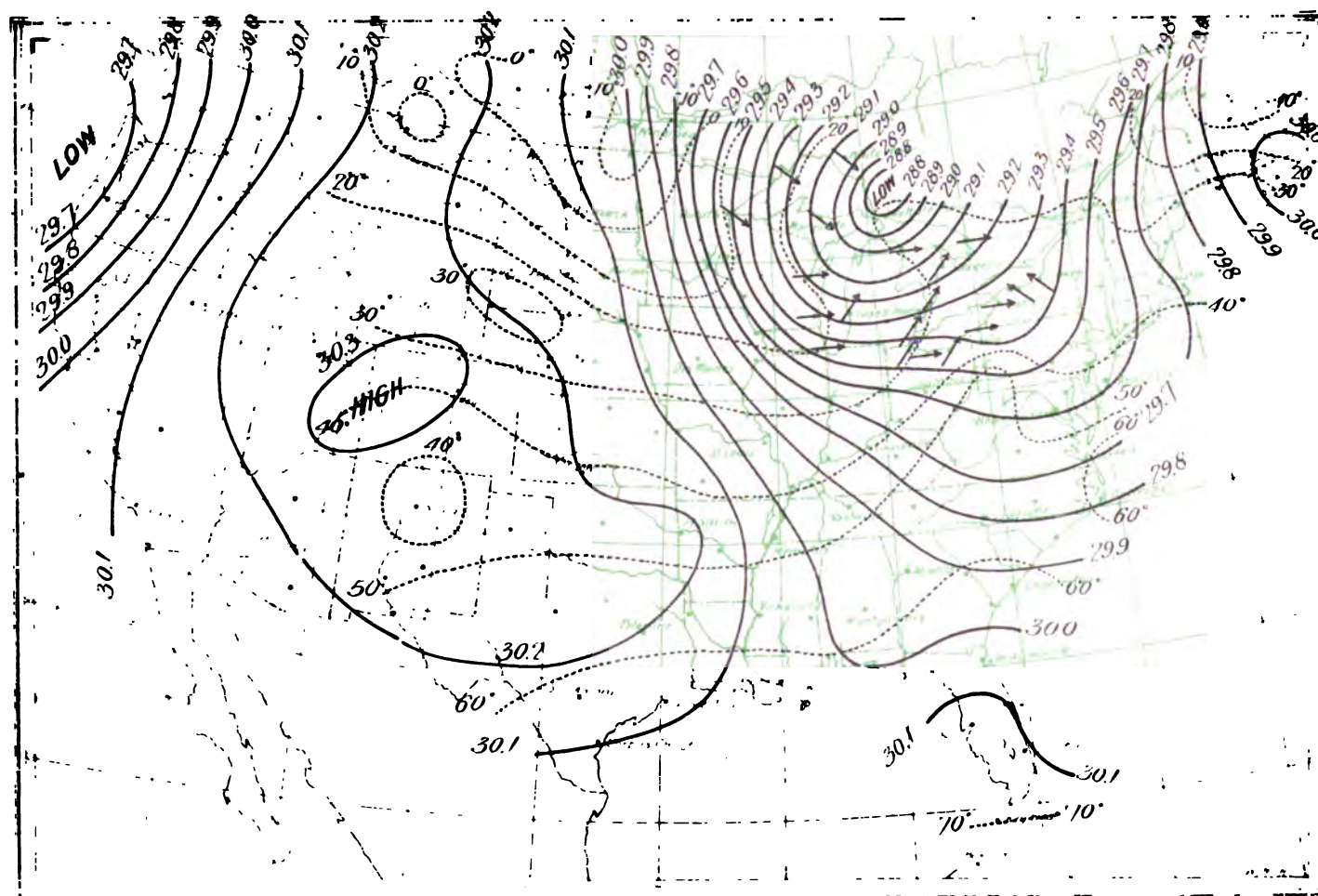


Chart LXI.

January 25, 1895—8 a. m.

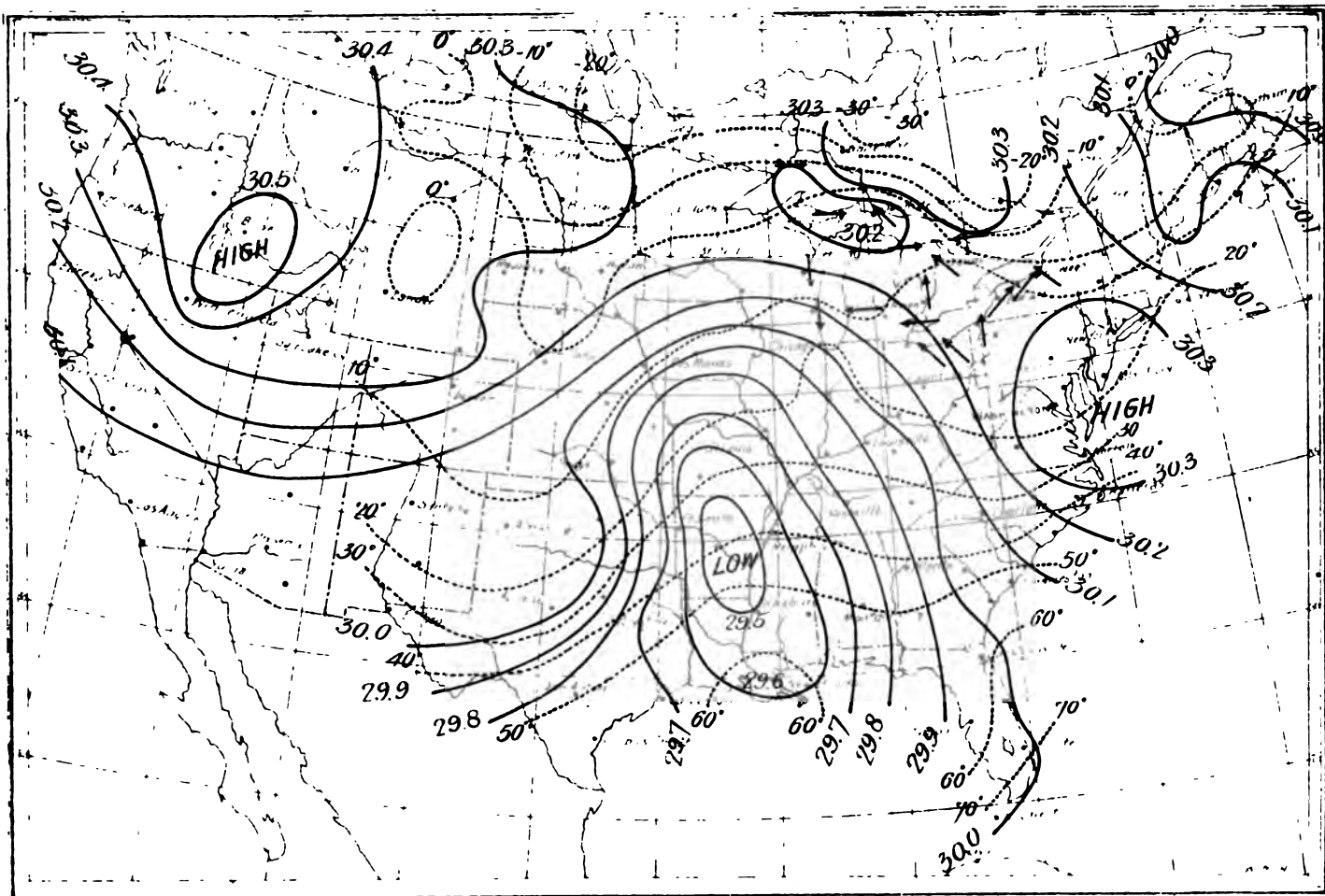


Chart LXII.

January 25, 1895—8 p. m.

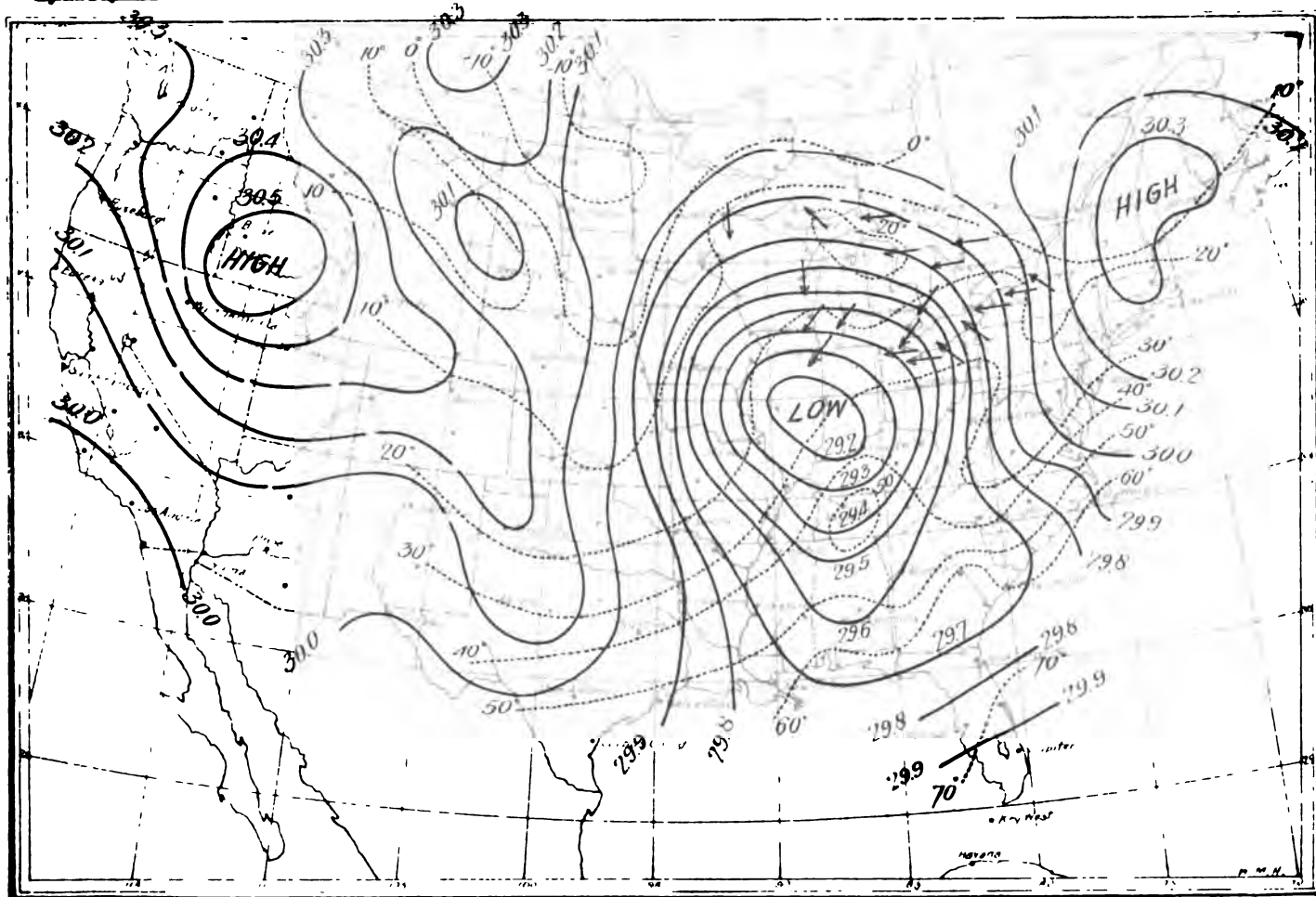


Chart LXIII.

January 26, 1895—8 a. m.

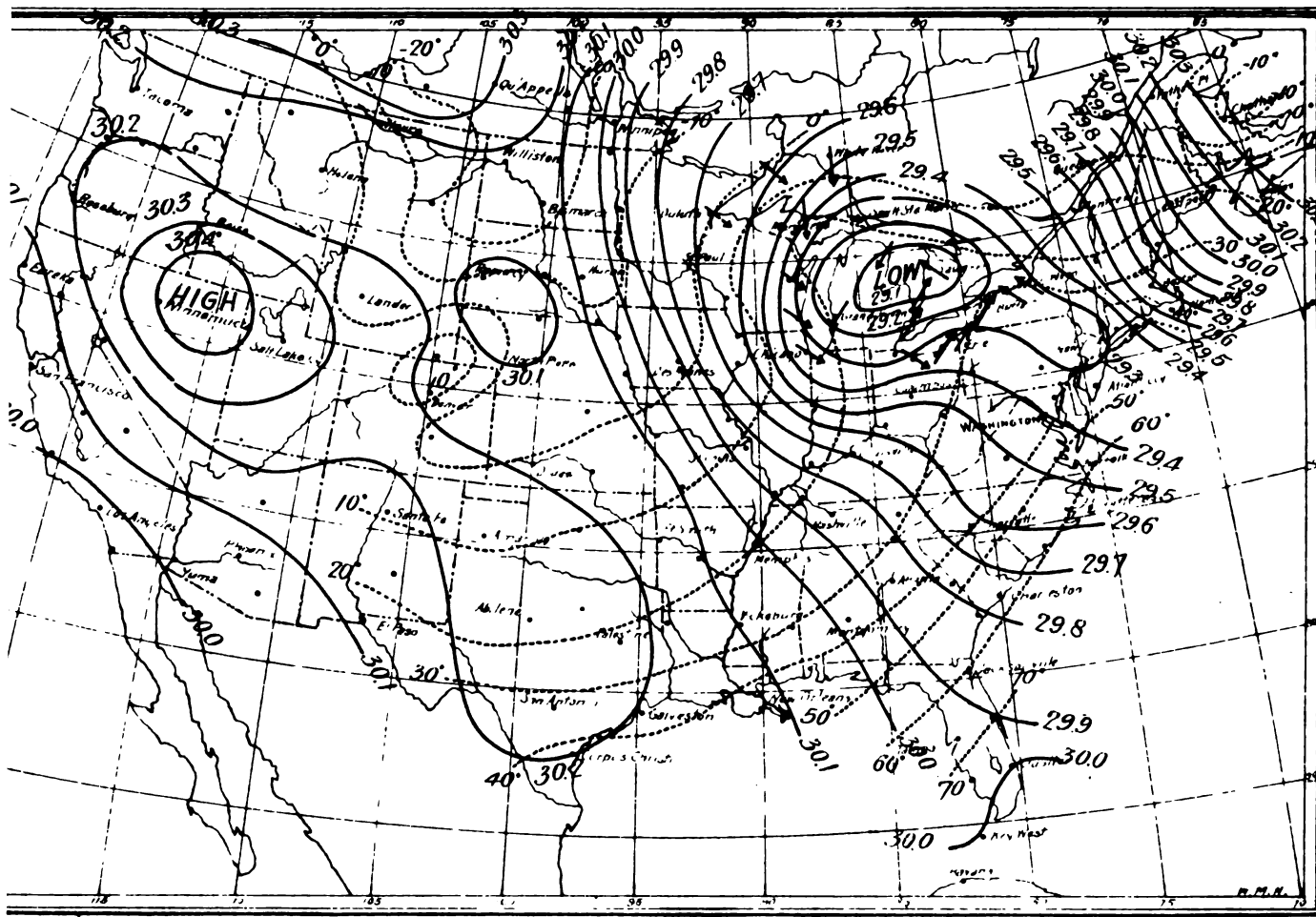


Chart LXIV.

January 26, 1895—8 p. m.

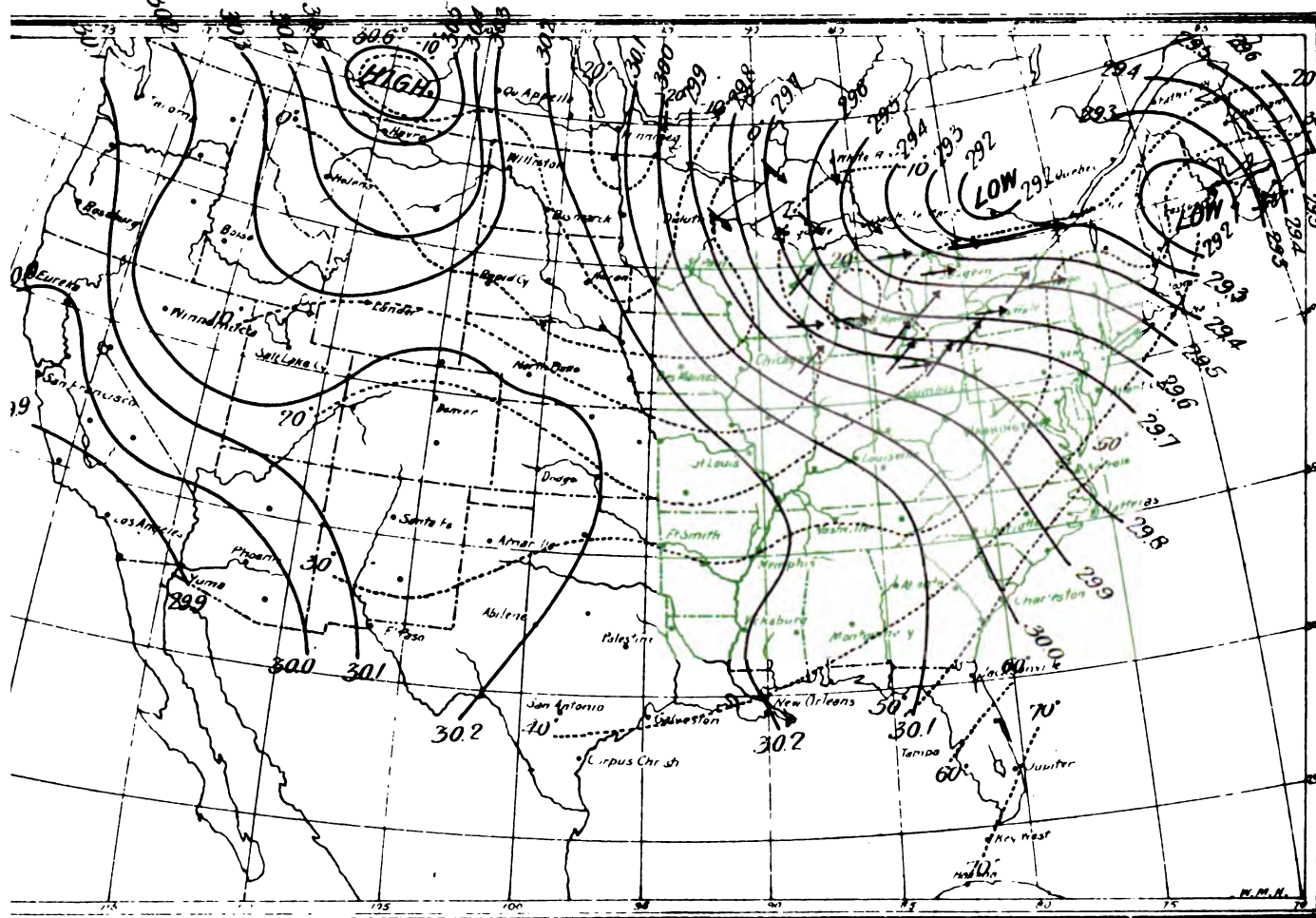


Chart LXV.

January 21, 1898—8 p. m.

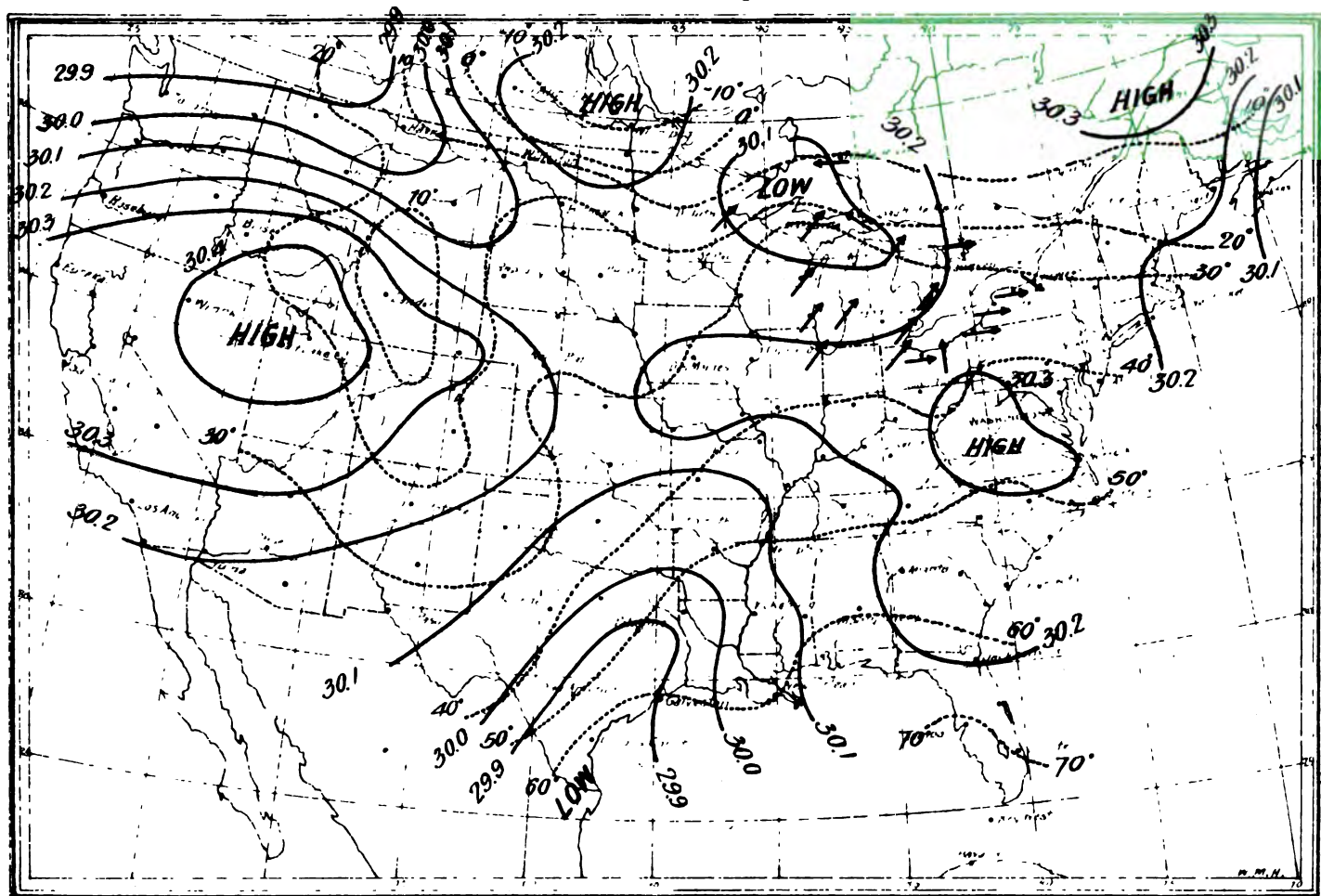
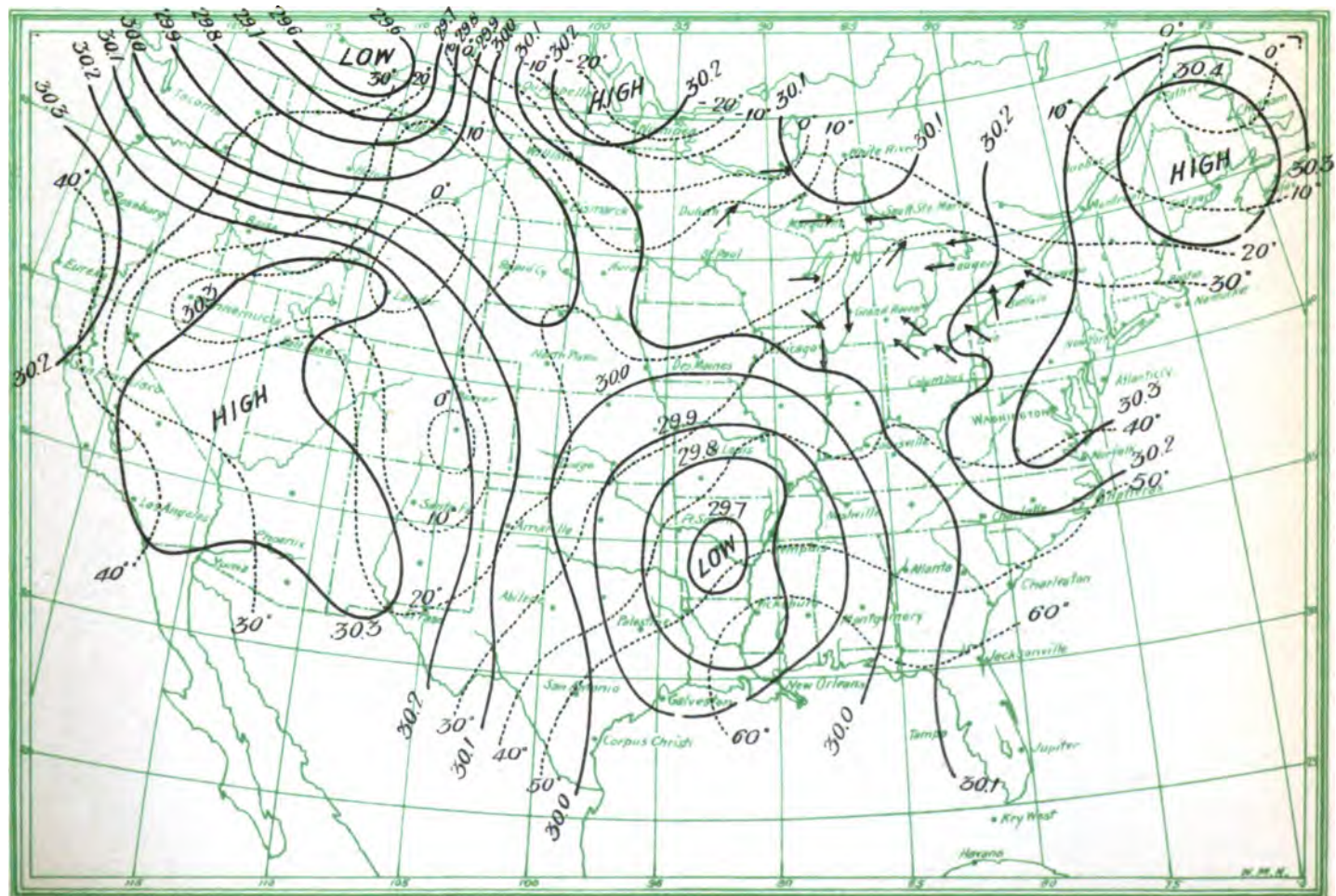


Chart LXVI.

January 22, 1898—8 a. m.



January 22, 1898—8 p. m.

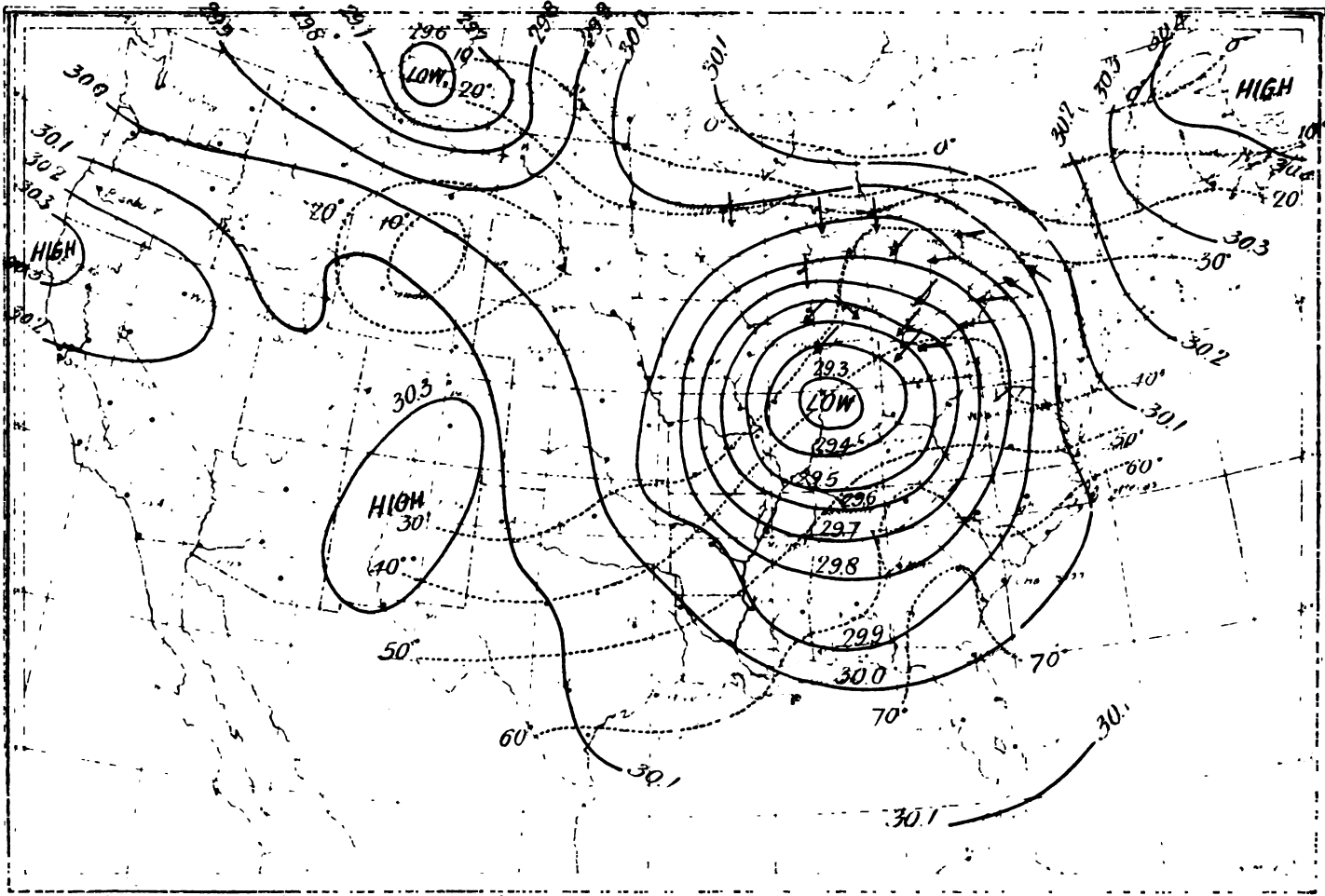
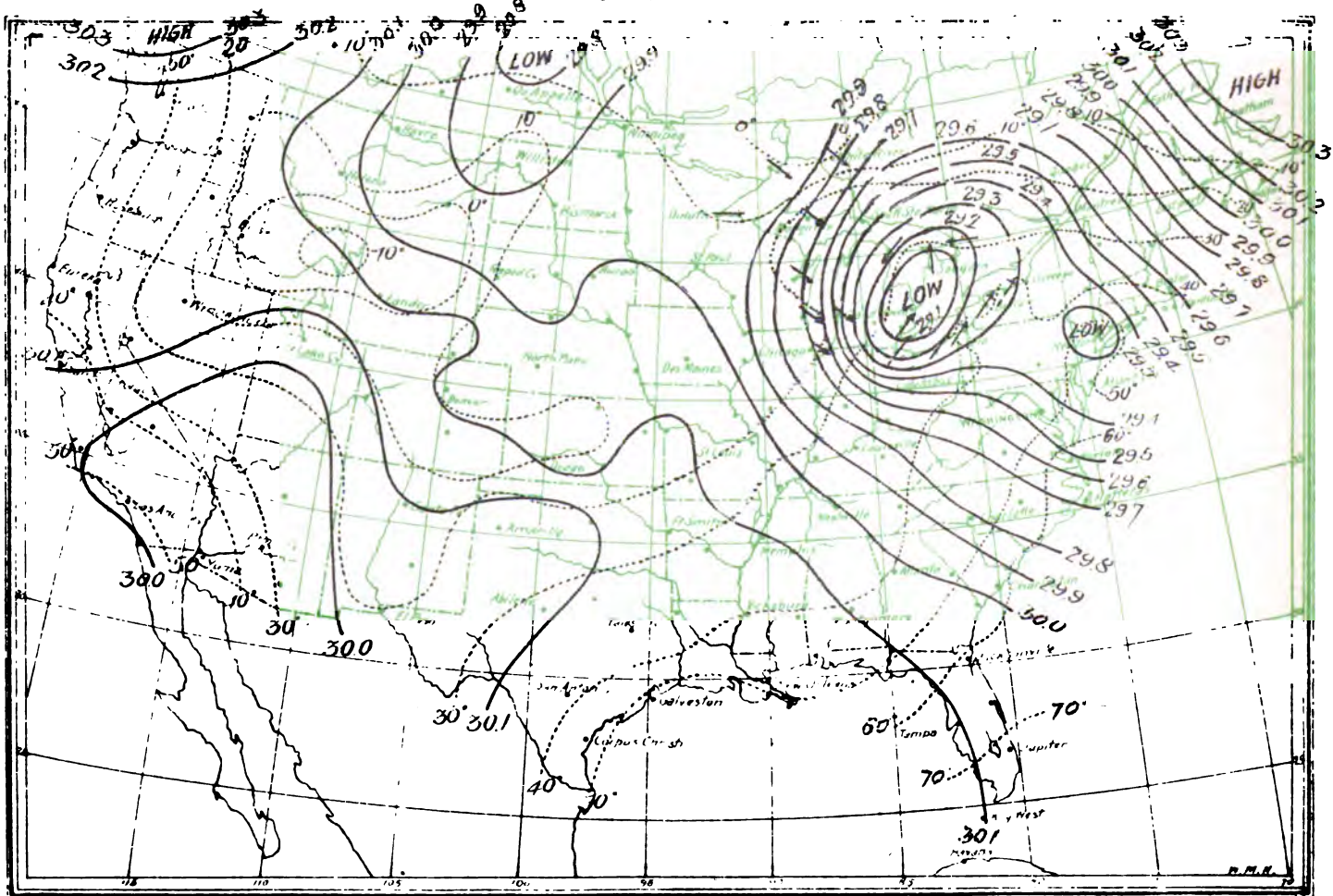


Chart LXVIII.

January 23, 1898—8 a. m.



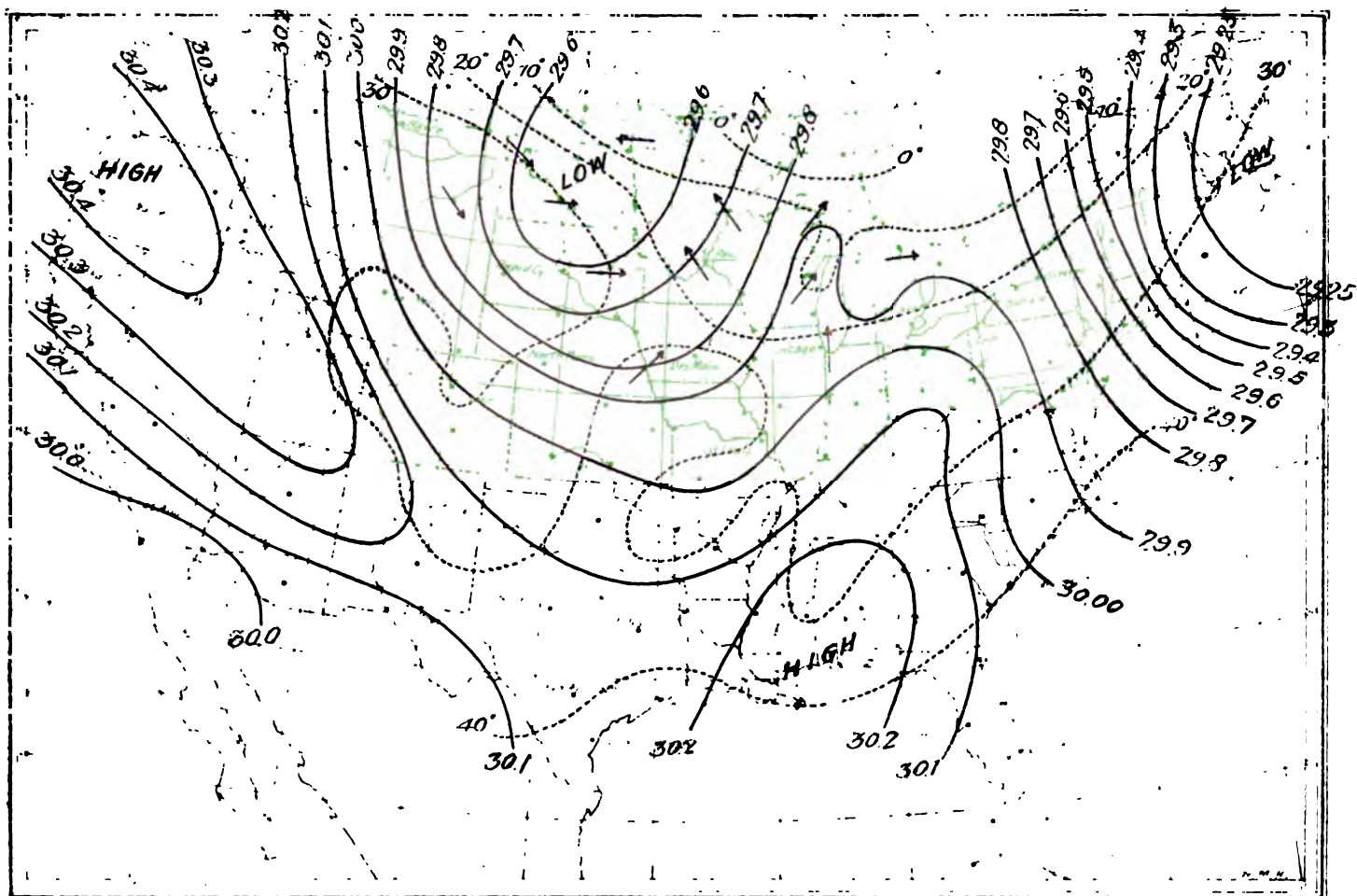


Chart LXX.

January 25, 1899—8 p. m.

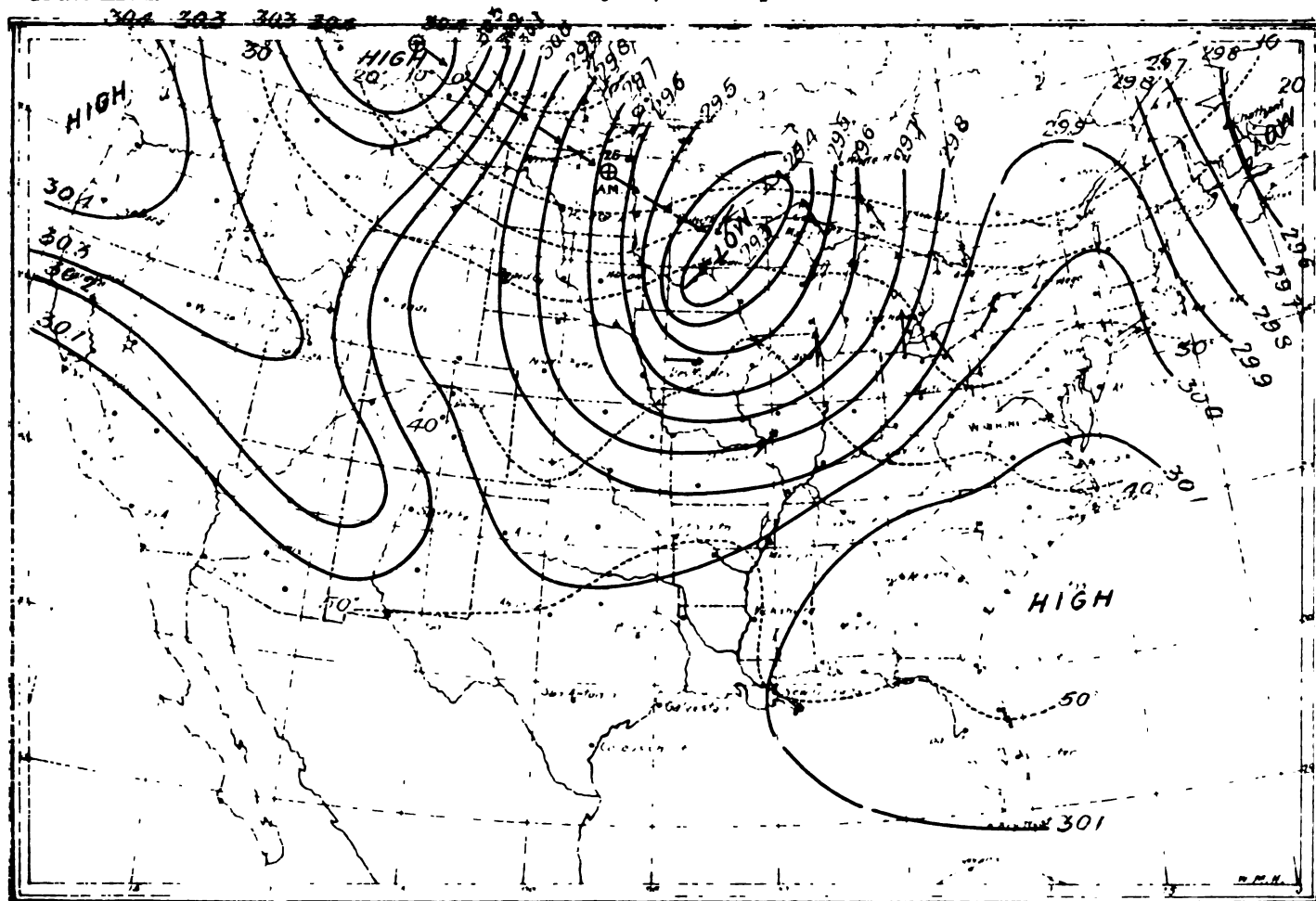


Chart LXXI.

January 26, 1899—8 a. m.

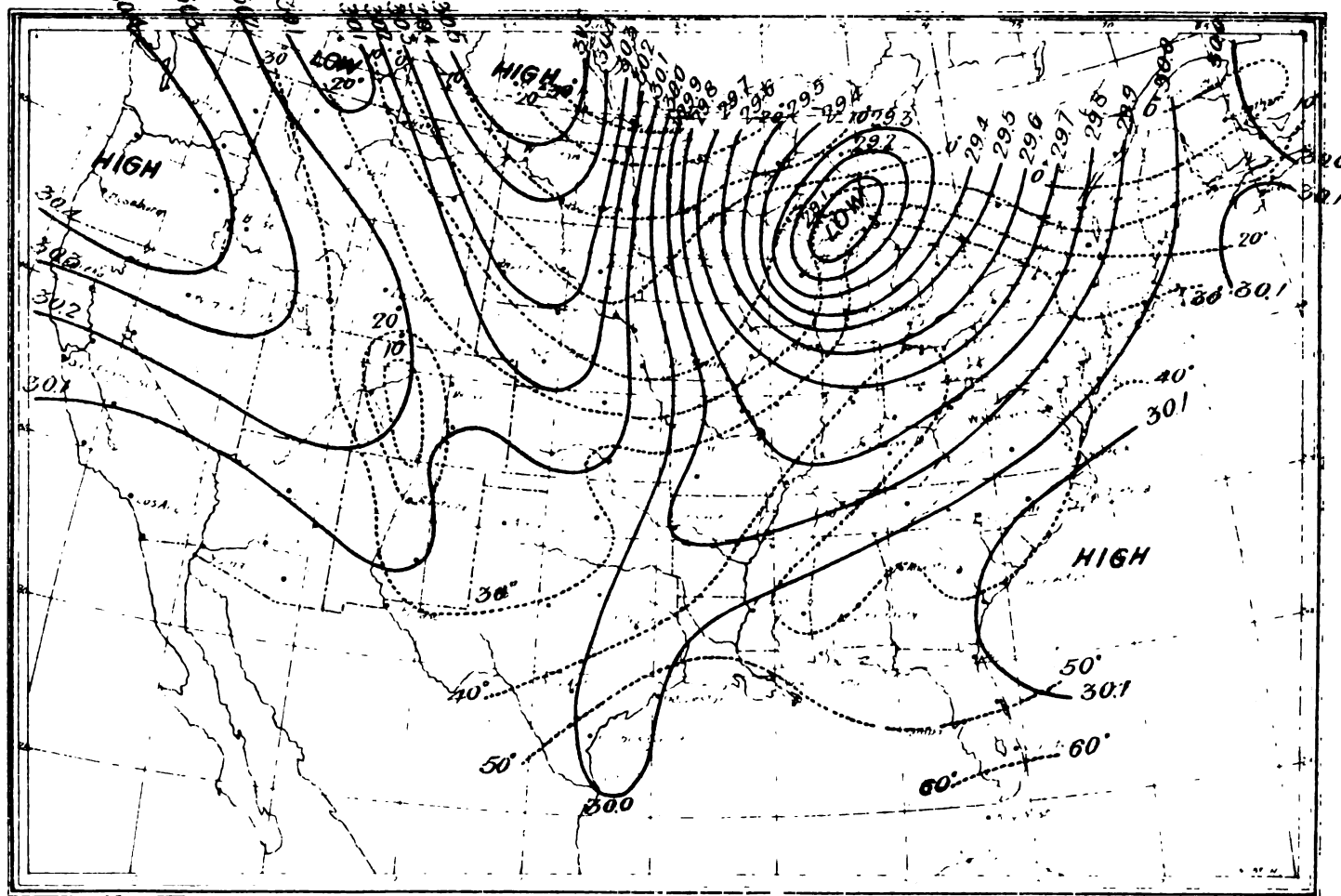
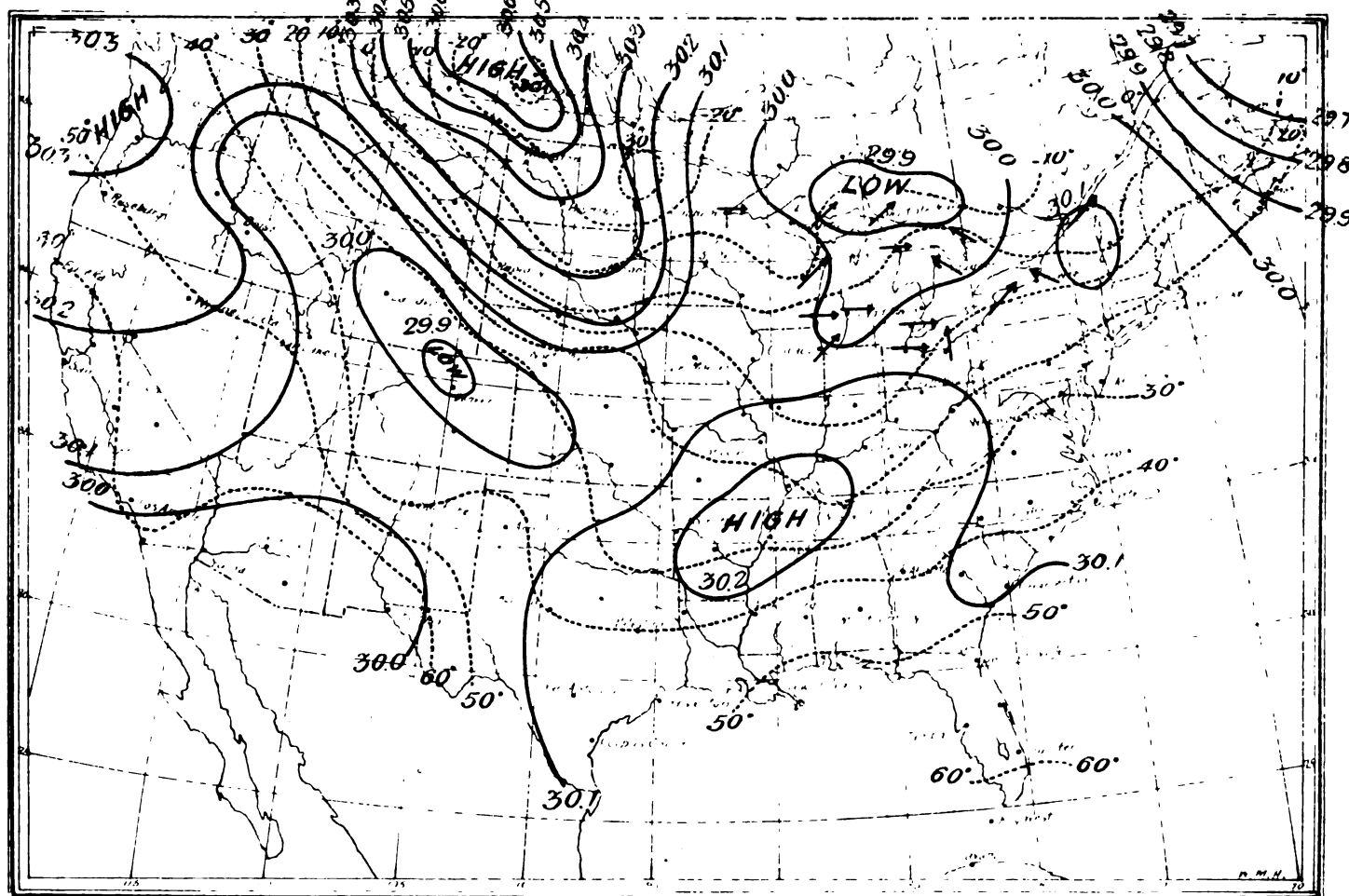
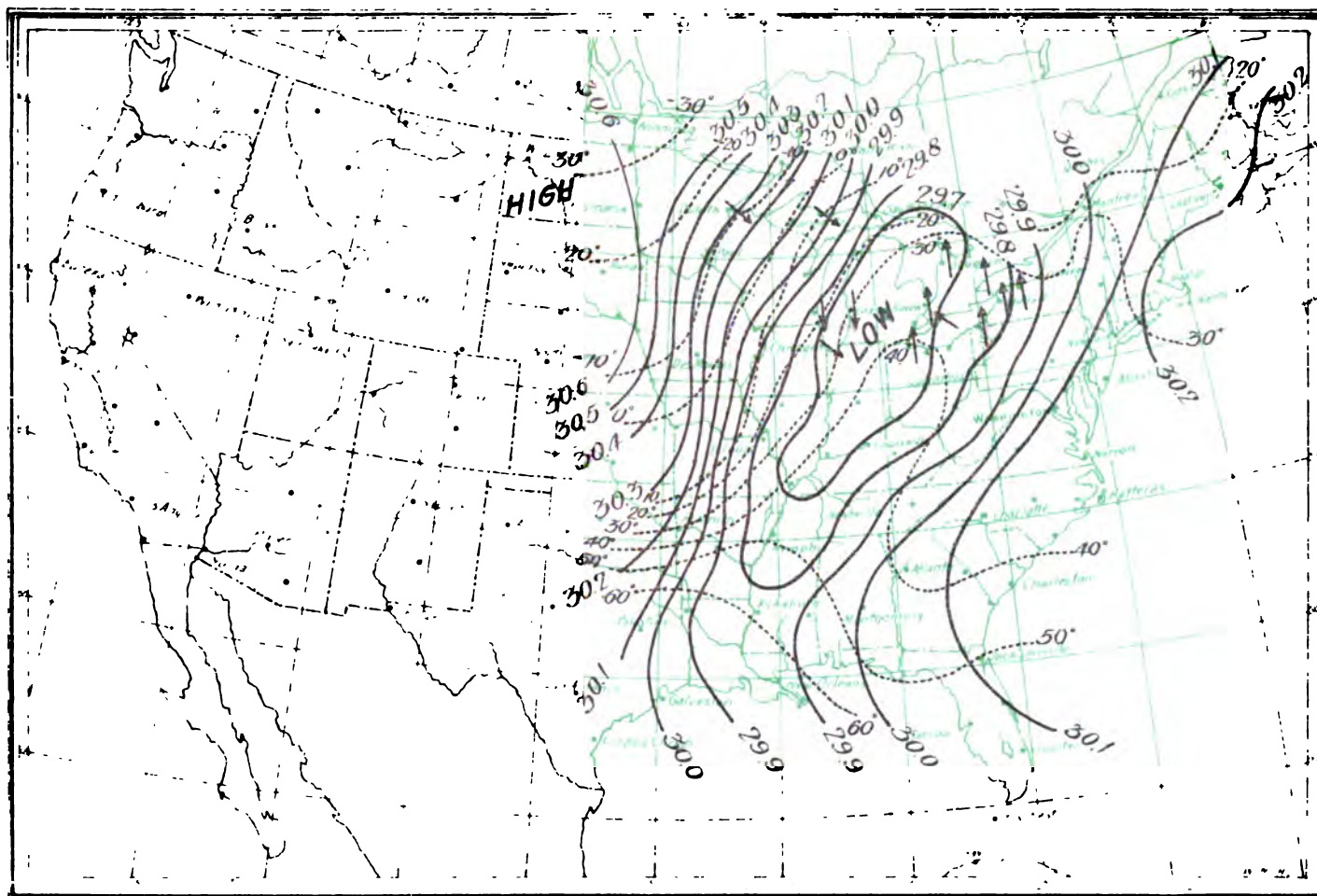


Chart LXXII.

January 26, 1899—8 p. m.





February 1, 1876—4:35 p. m.

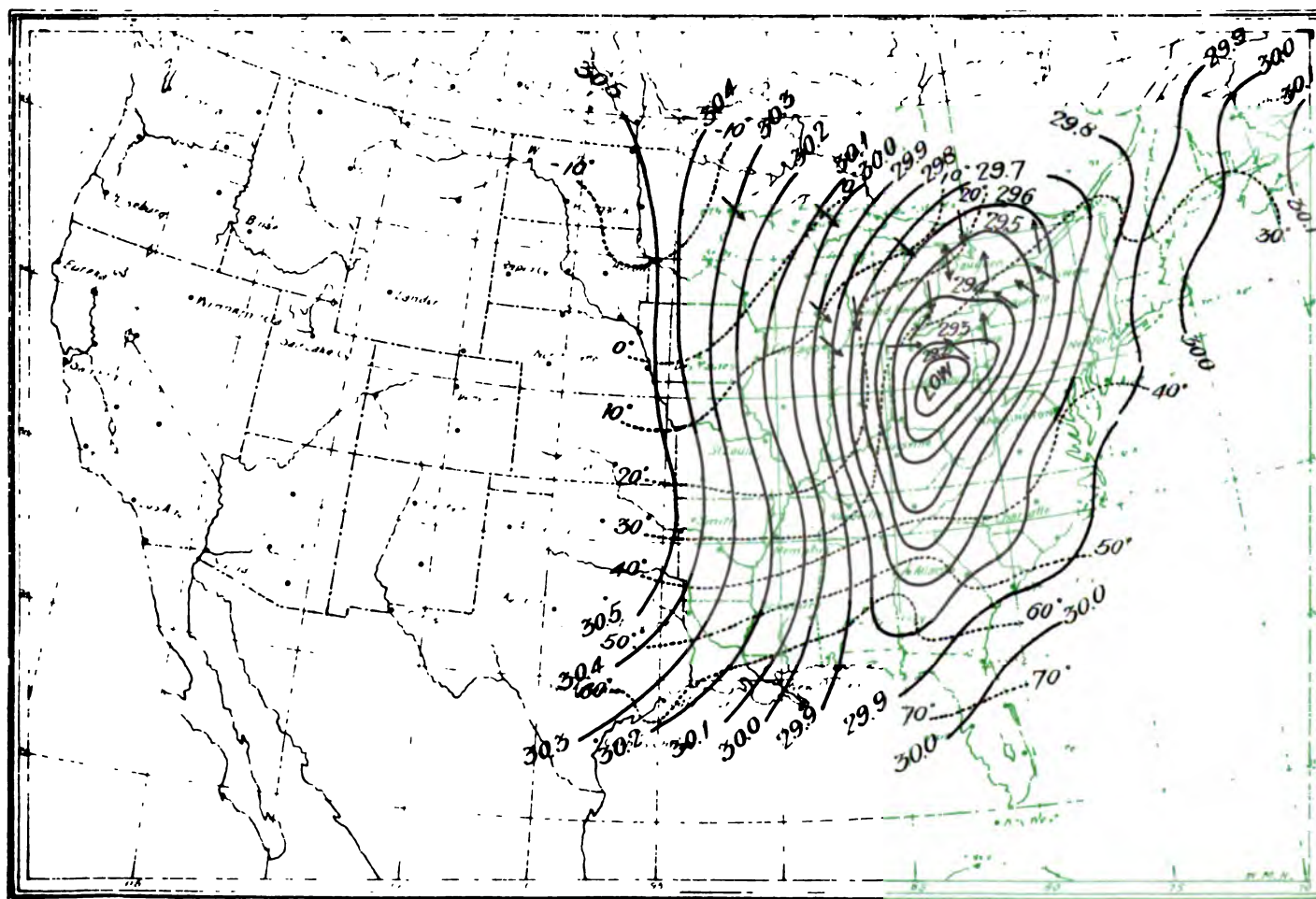


Chart LXXV.

February 1, 1876—11 p. m.

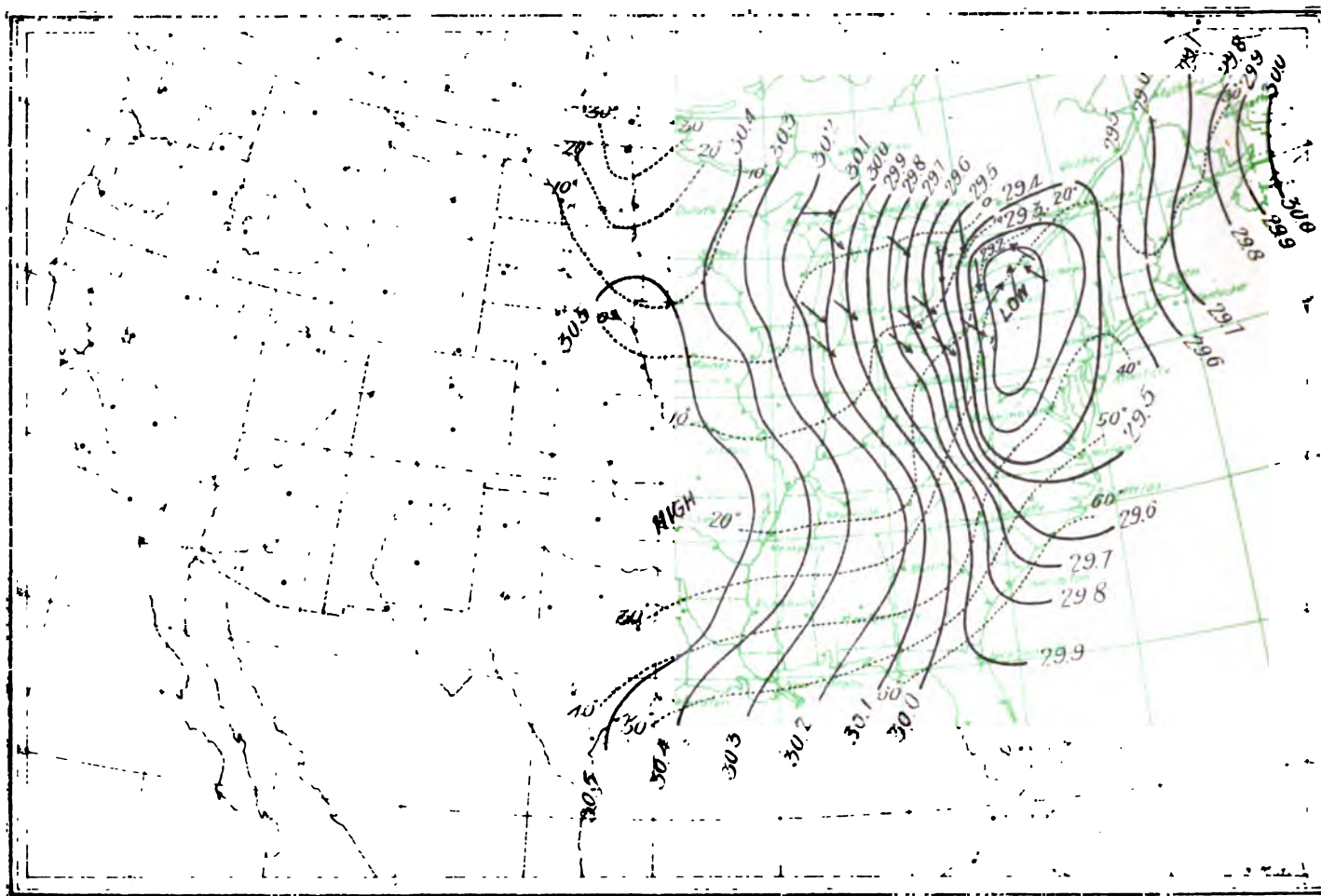
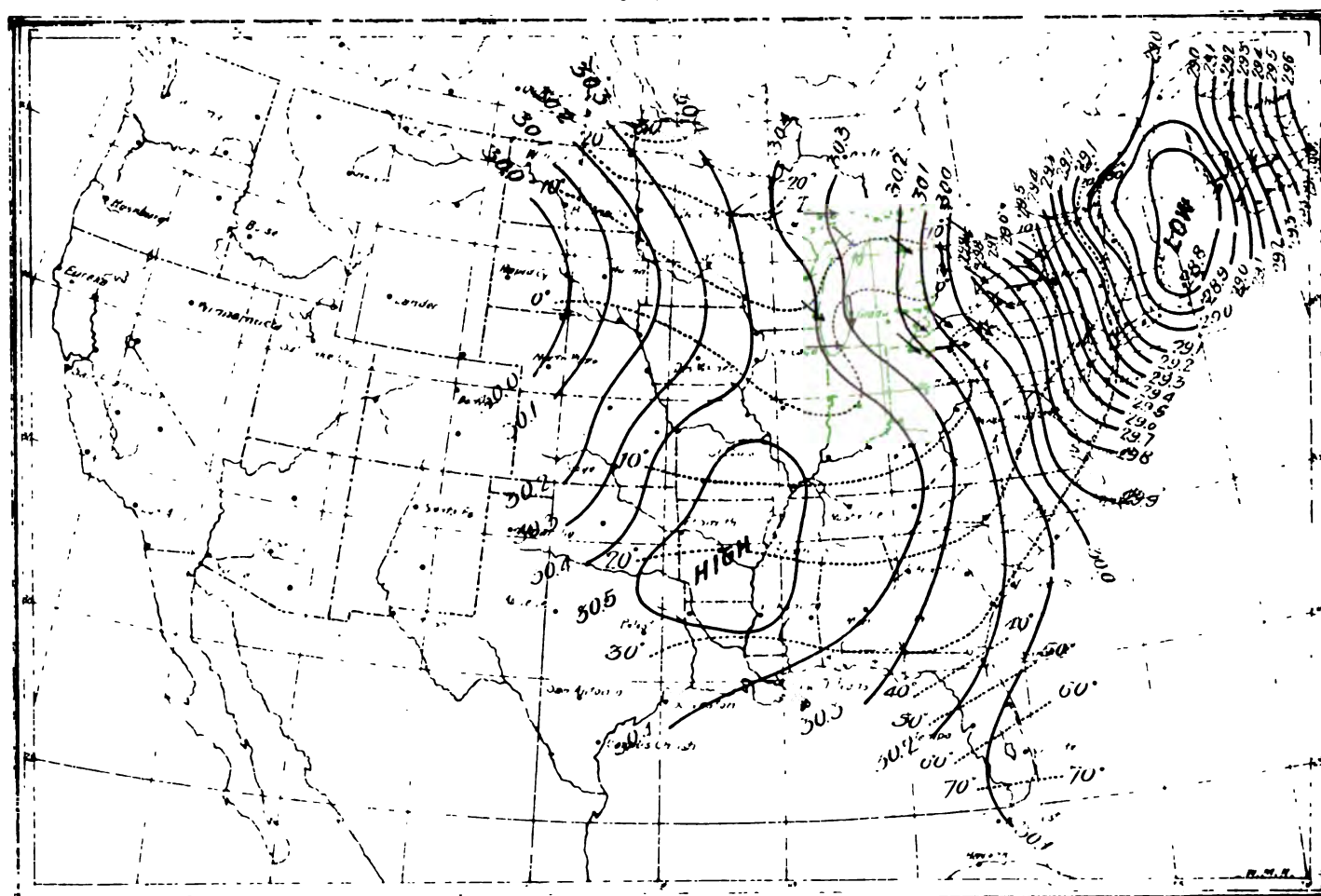


Chart LXXVI.

February 2, 1876—7 a. m.



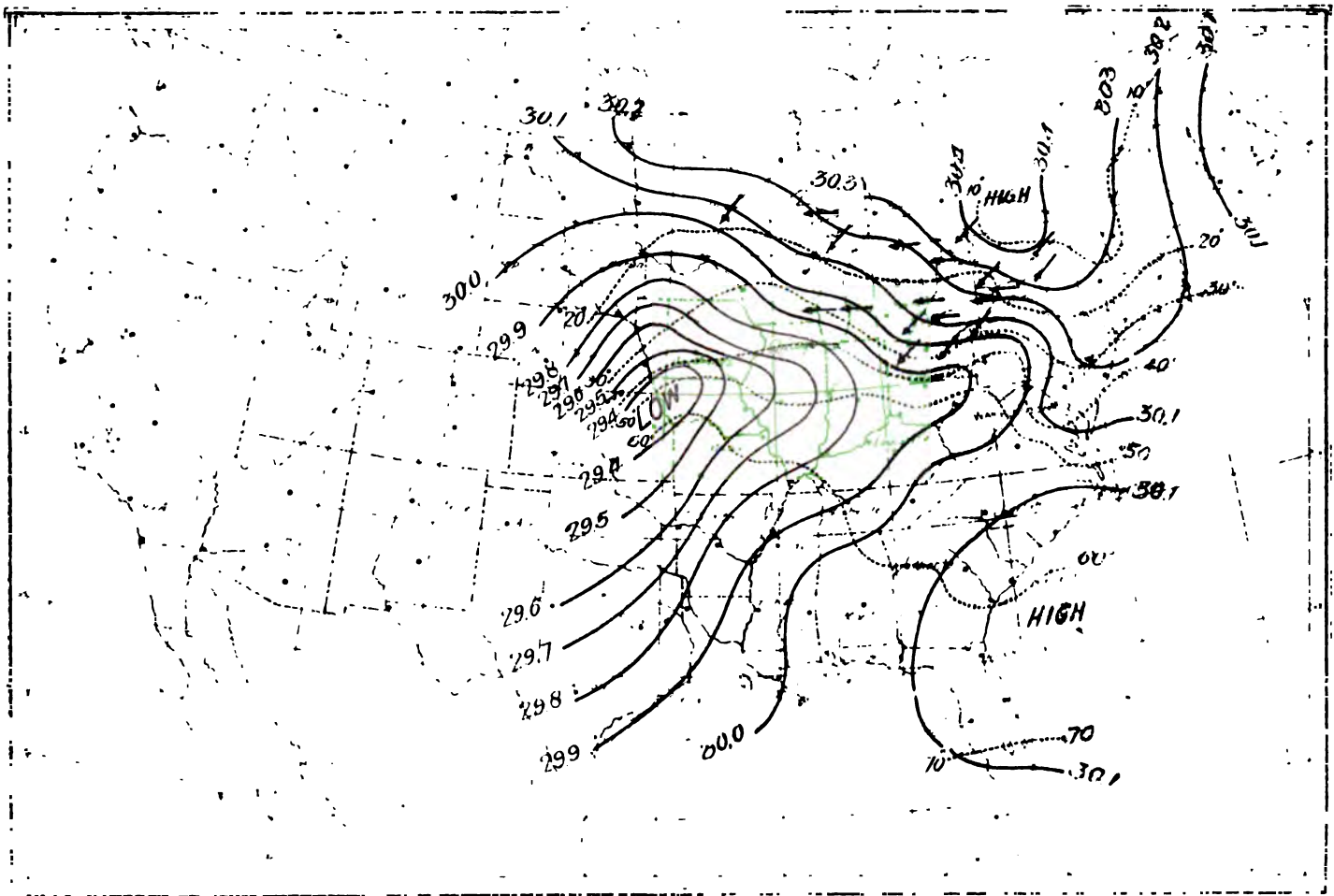


Chart LXXVIII.

February 27, 1876—7:35 a. m.

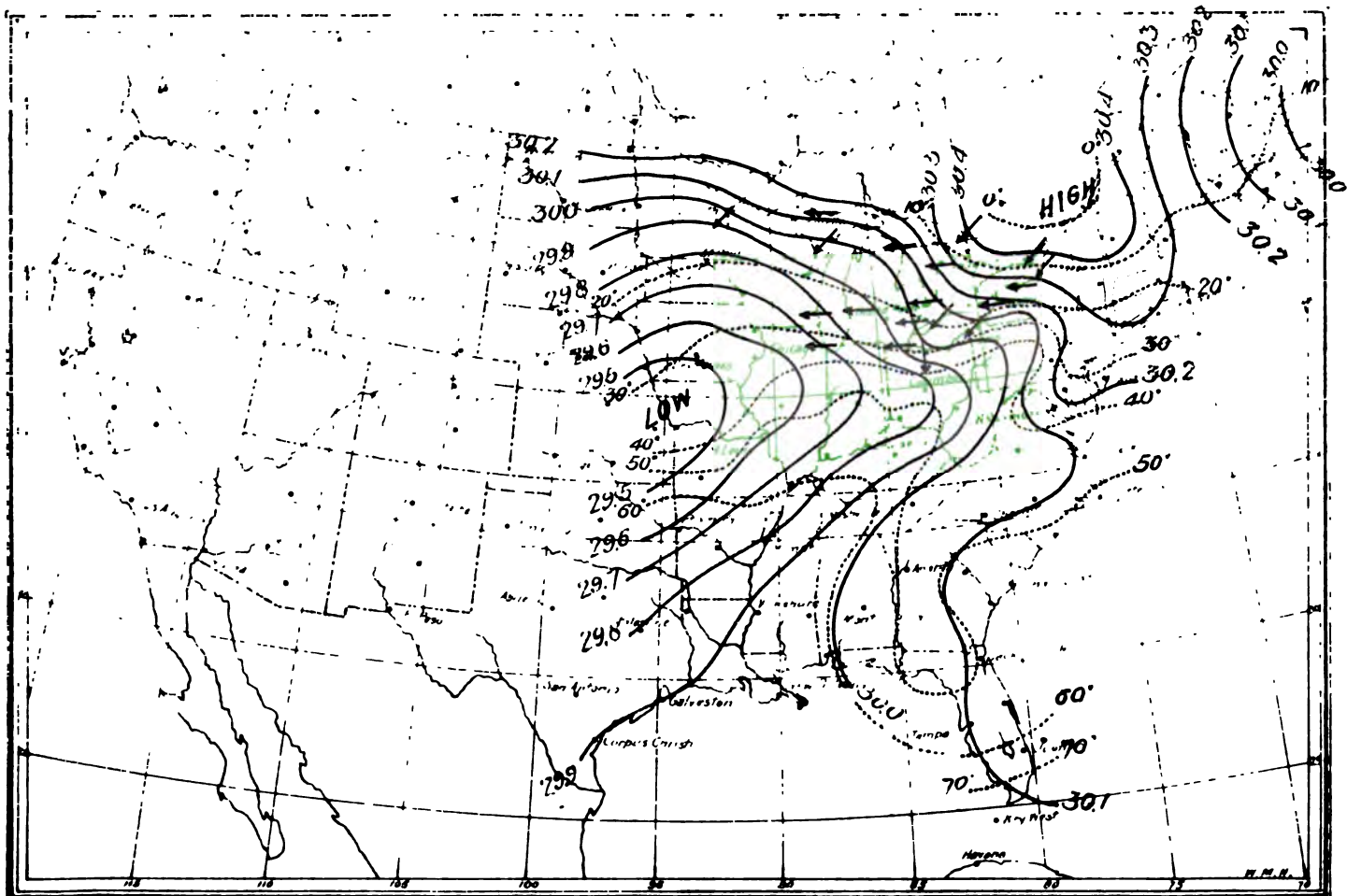


Chart LXXIX.

February 27, 1876—4:35 p. m.

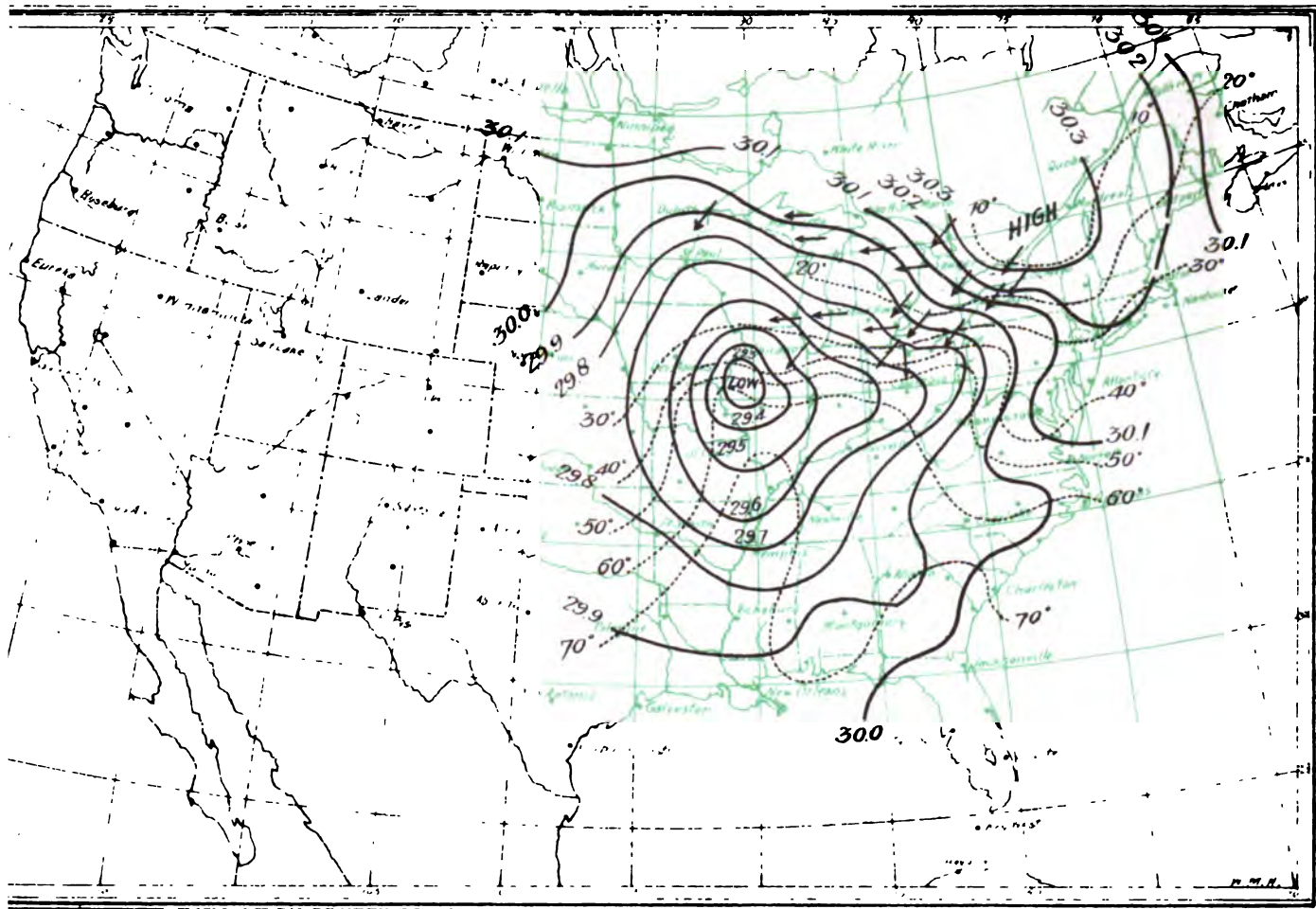
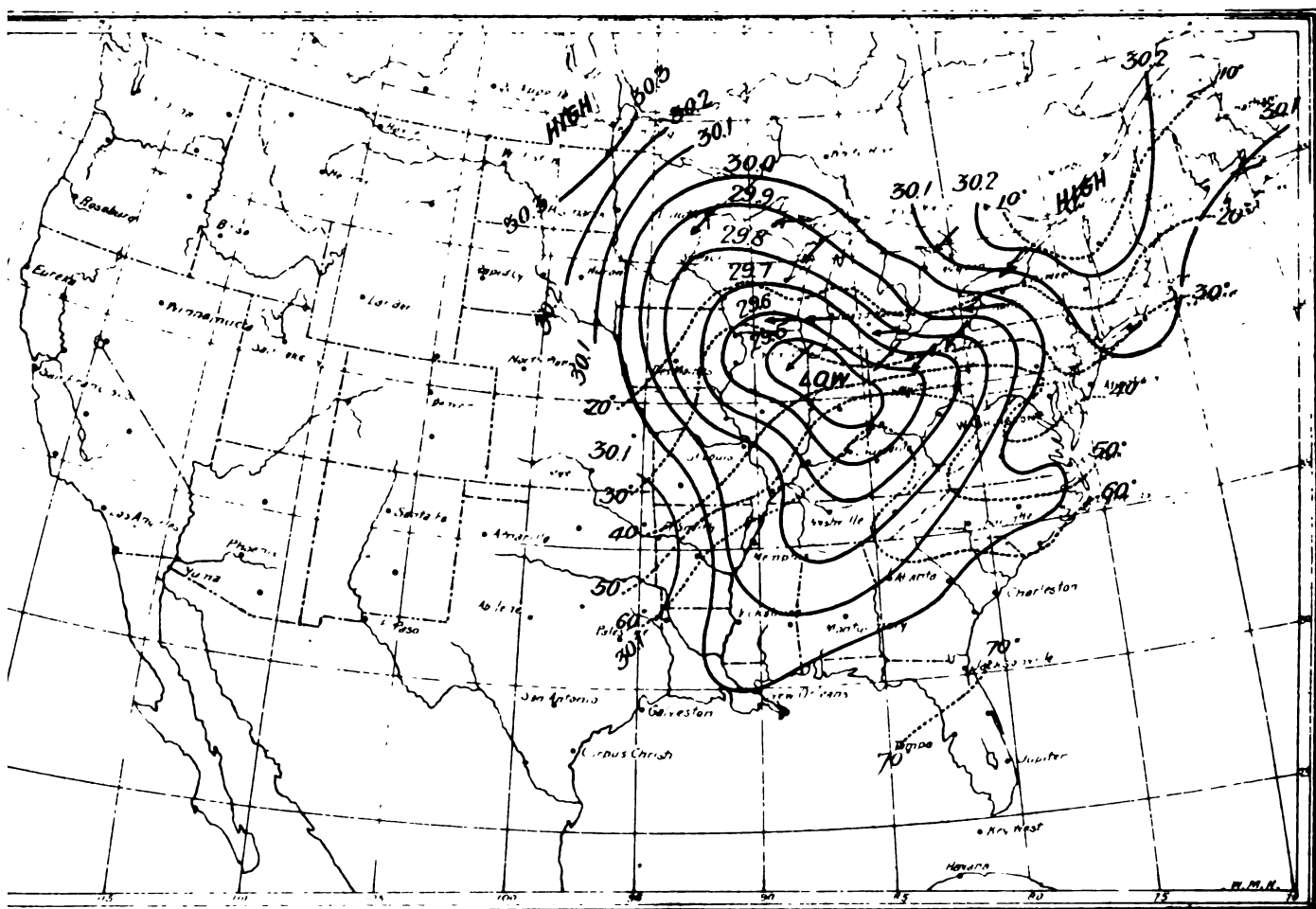


Chart LXXX.

February 27, 1876—11 p. m.



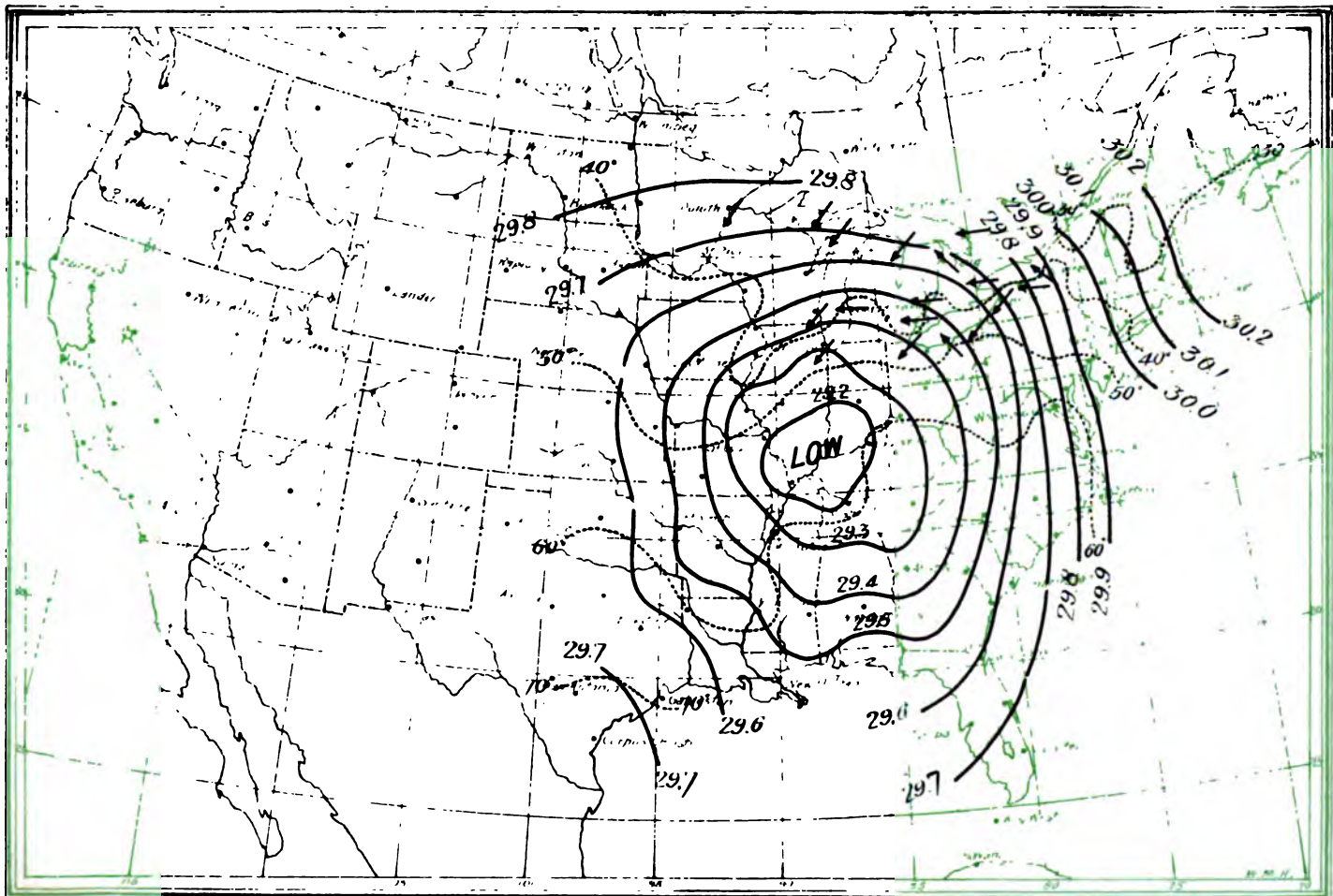
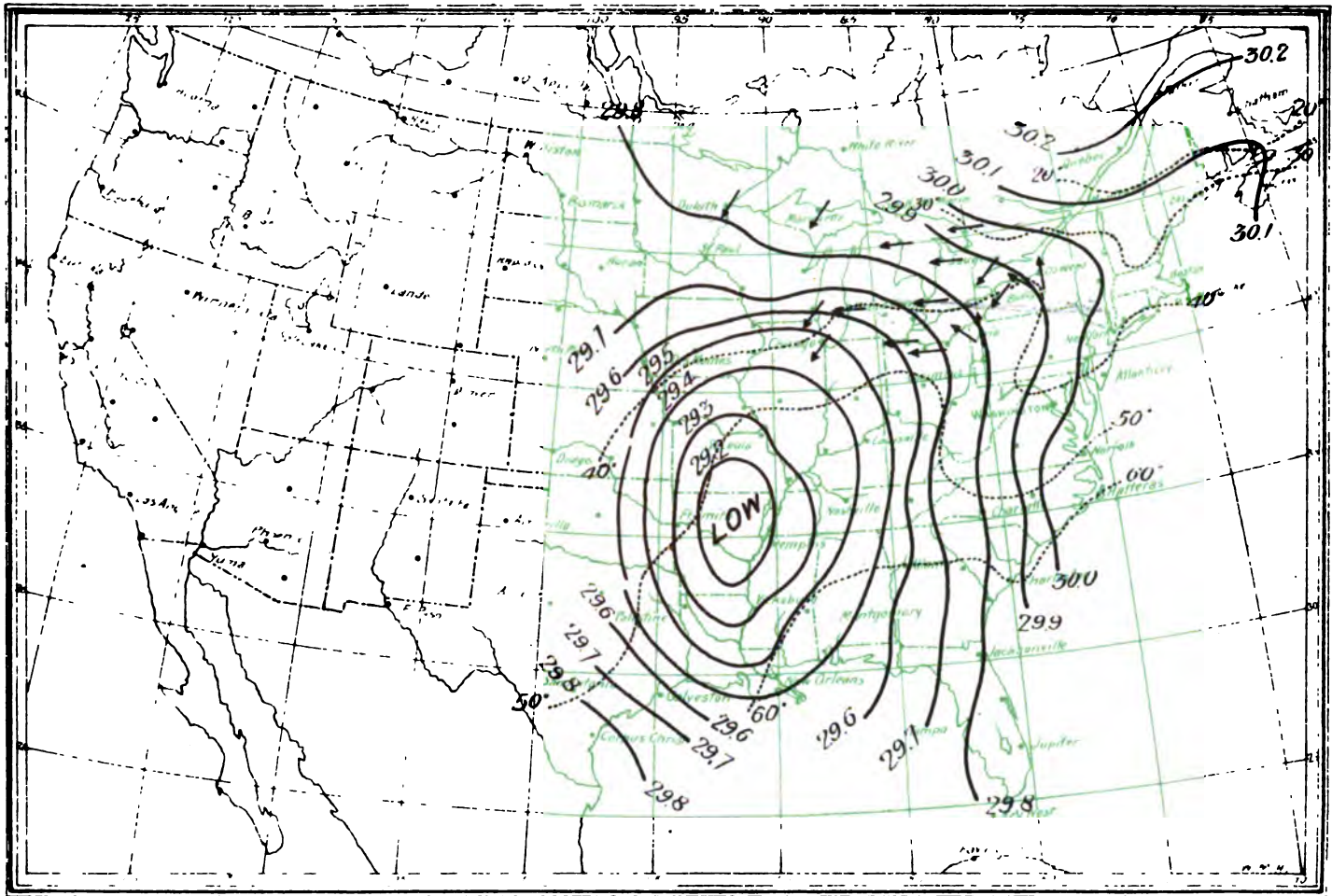


Chart LXXXIII.

February 21, 1878—11 p. m.

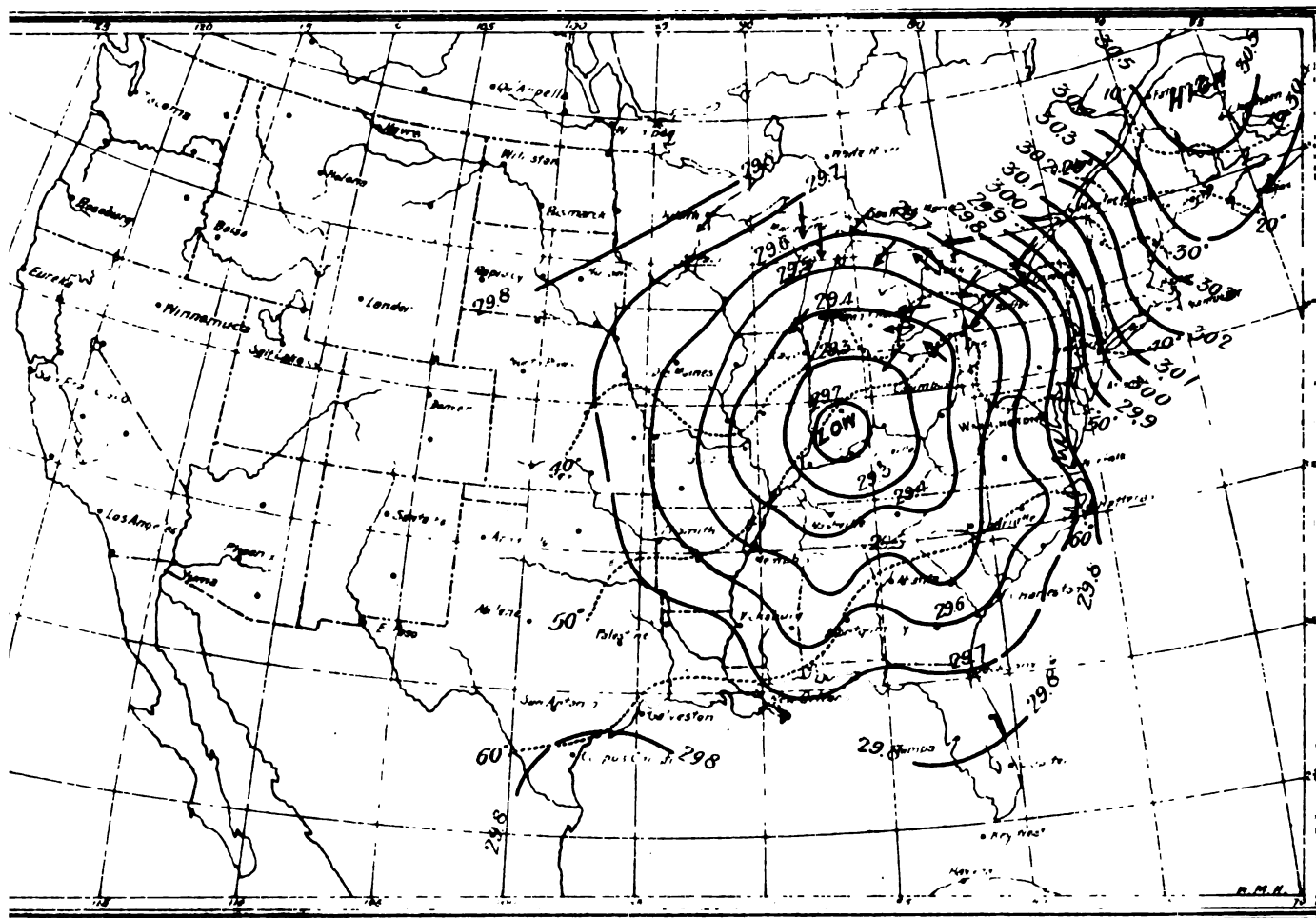


Chart LXXXIV.

February 22, 1878—7:35 a. m.

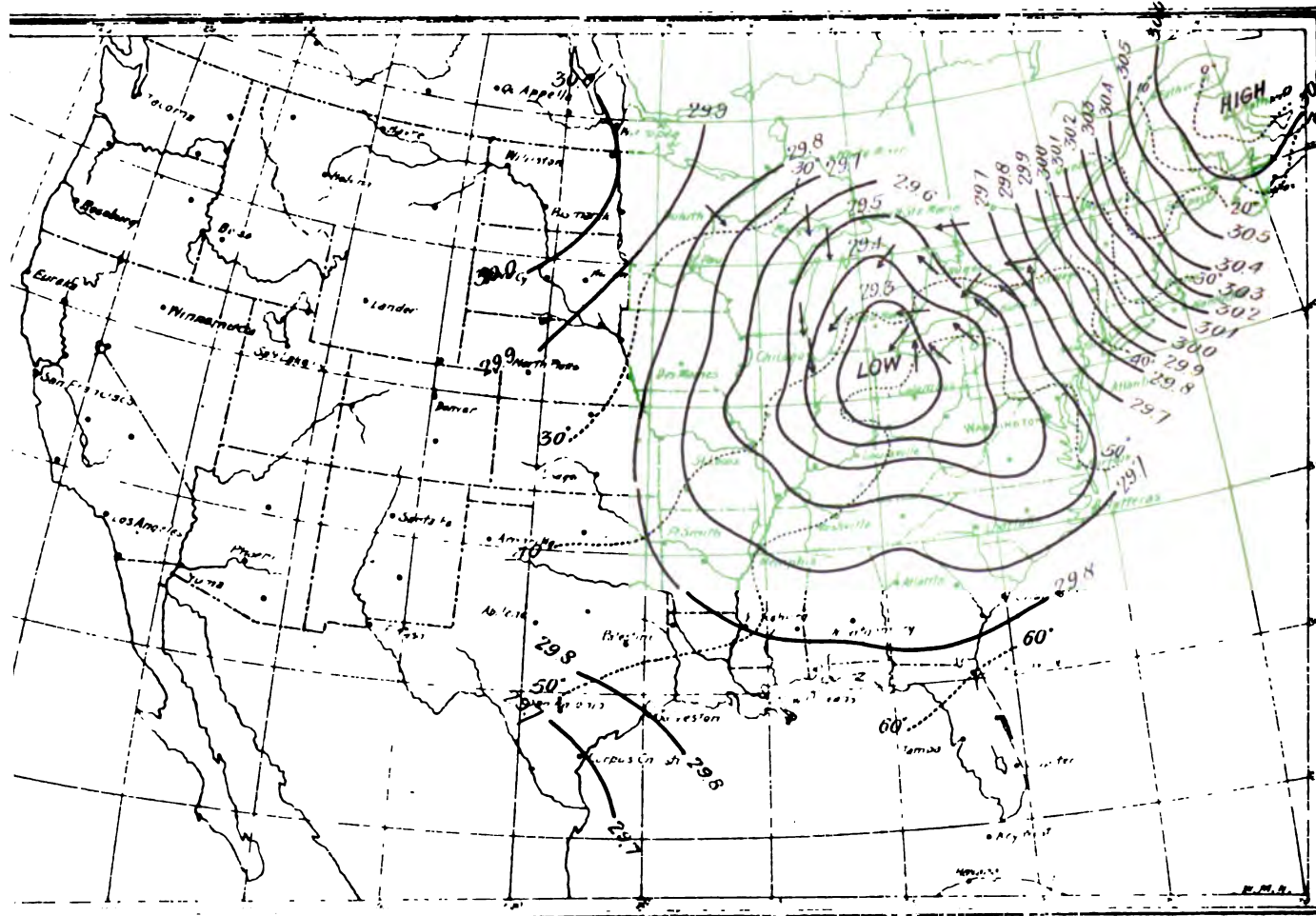


Chart LXXXV.

February 11, 1880—7 a. m.

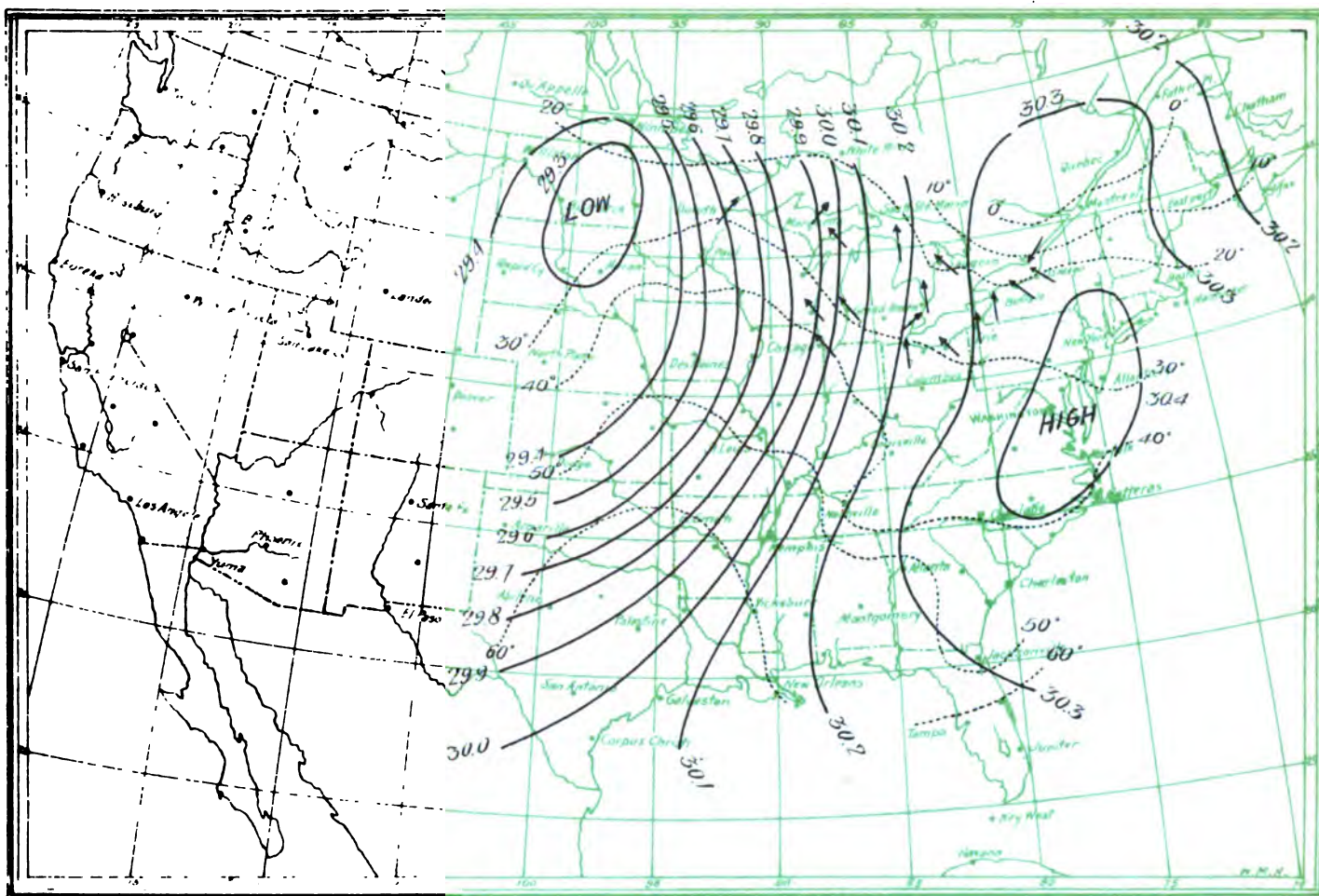
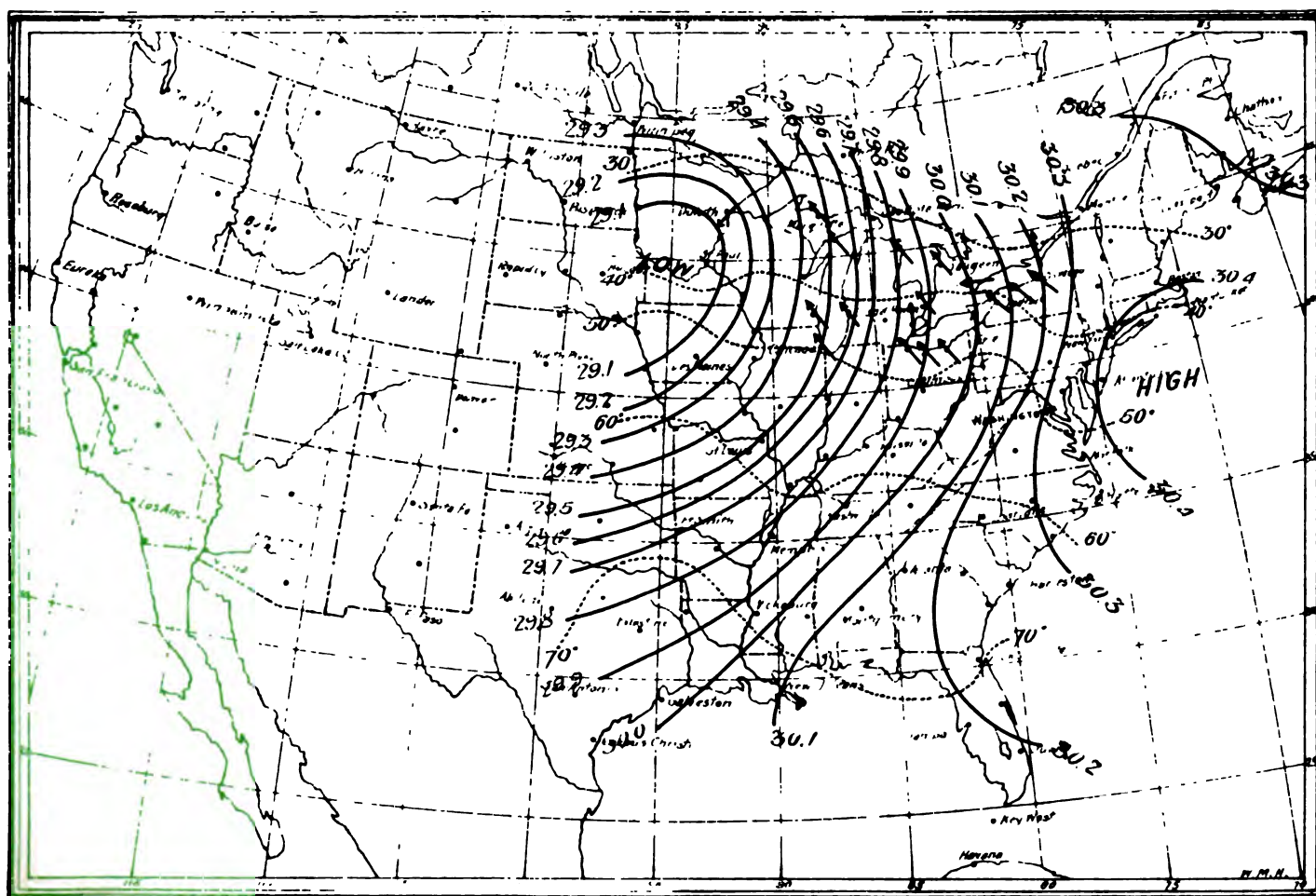


Chart LXXXVI.

February 11, 1880—3 p. m.



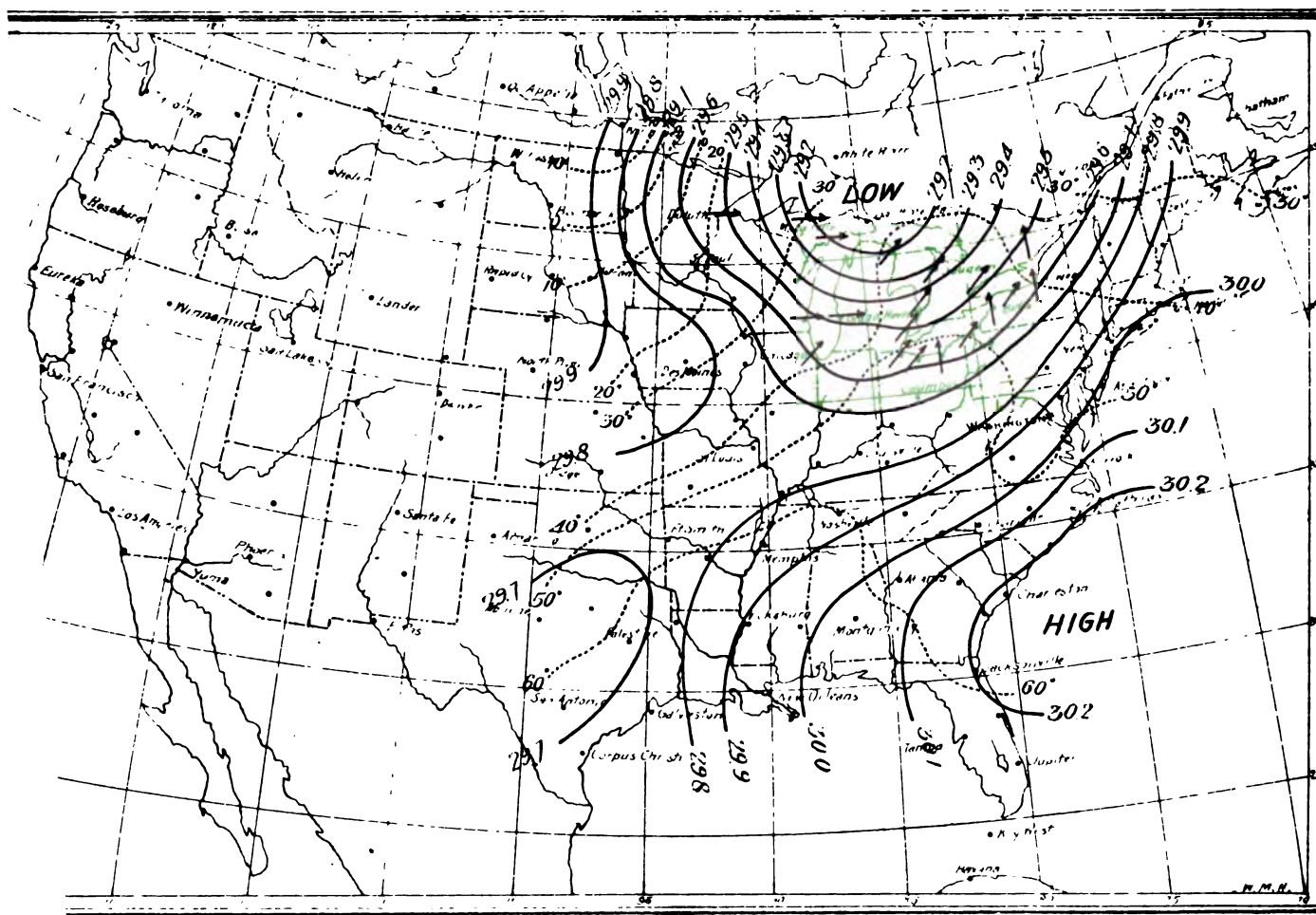
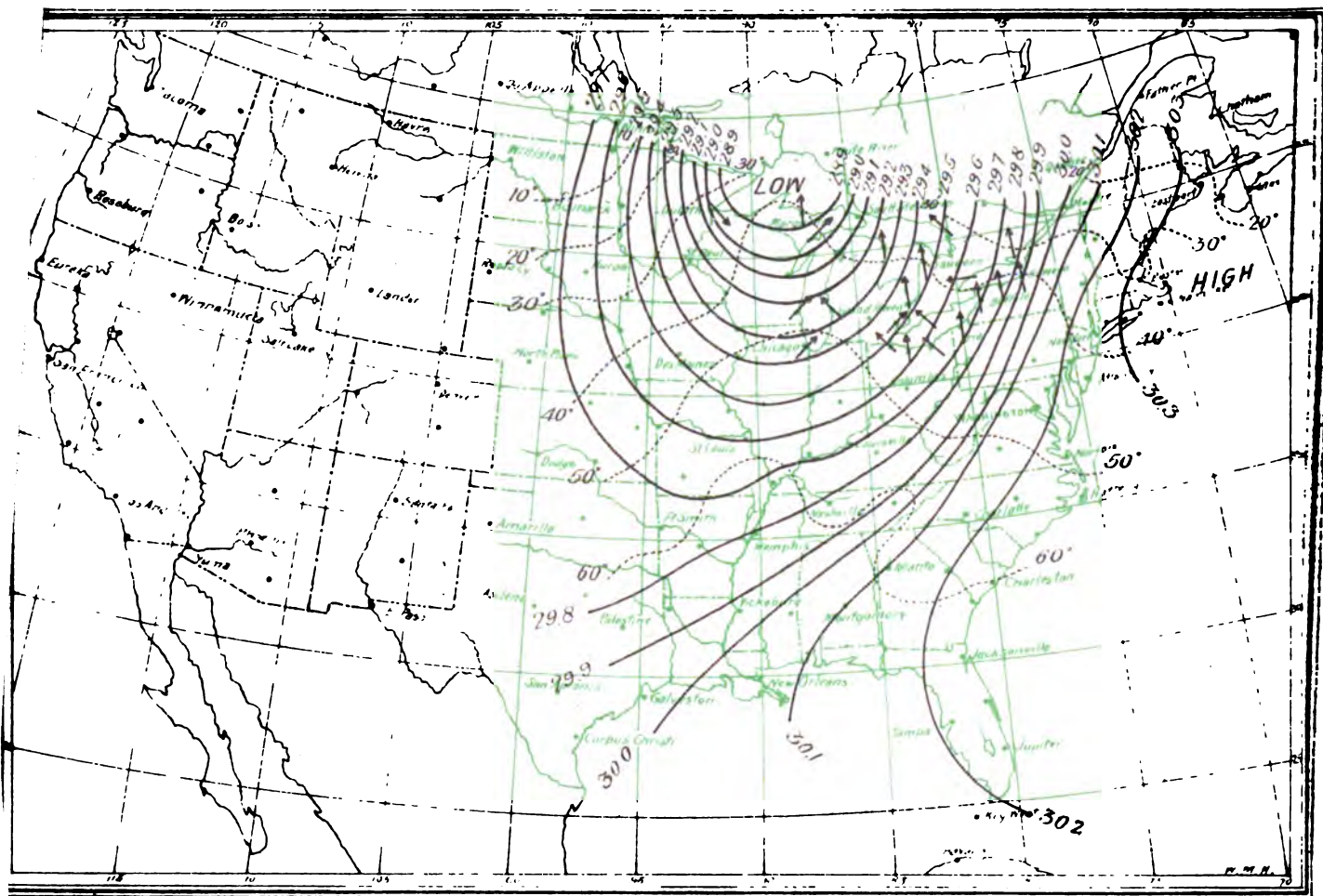


Chart LXXXIX.

February 9, 1881—7 a. m.

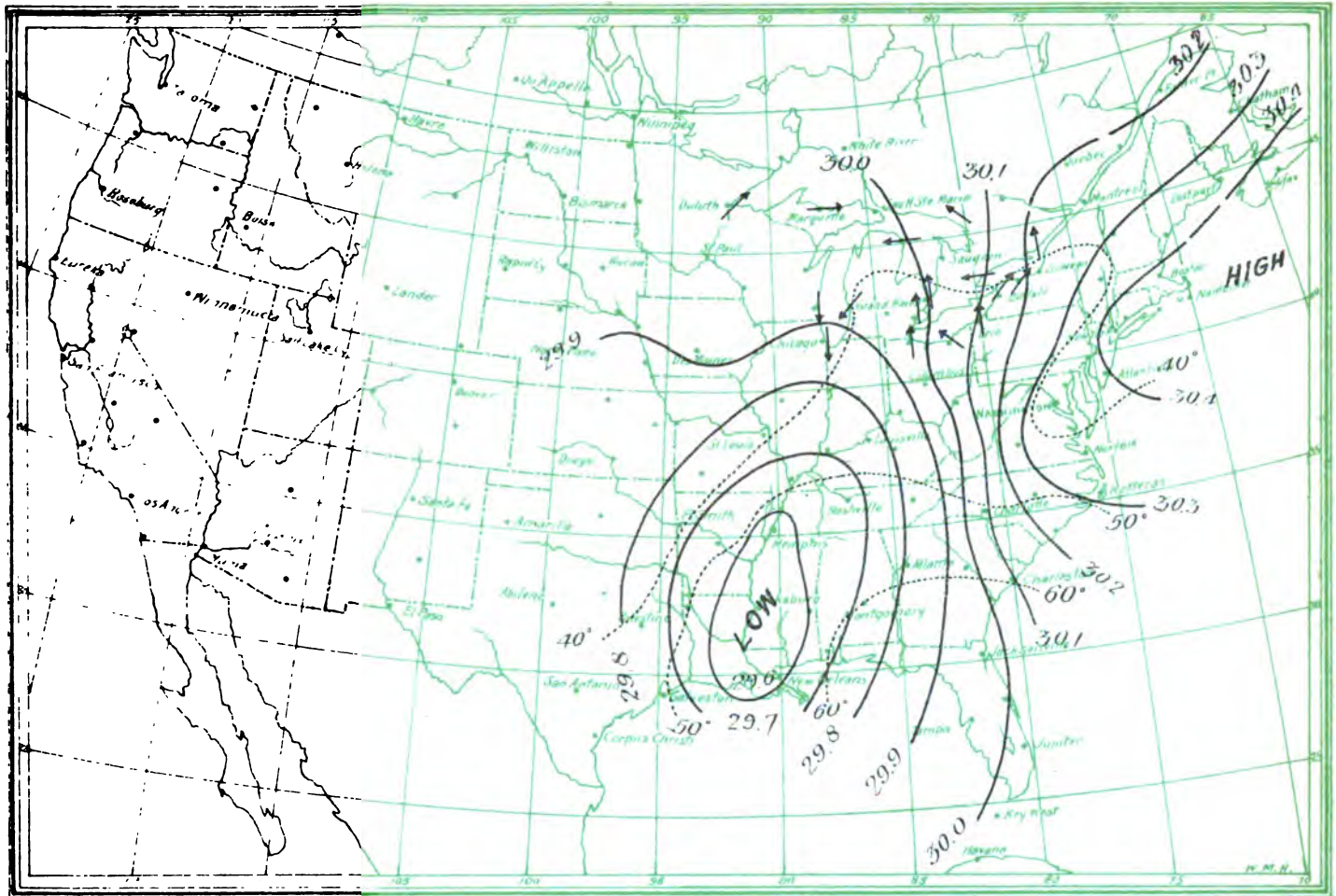


Chart XC.

February 9, 1881—3 p. m.

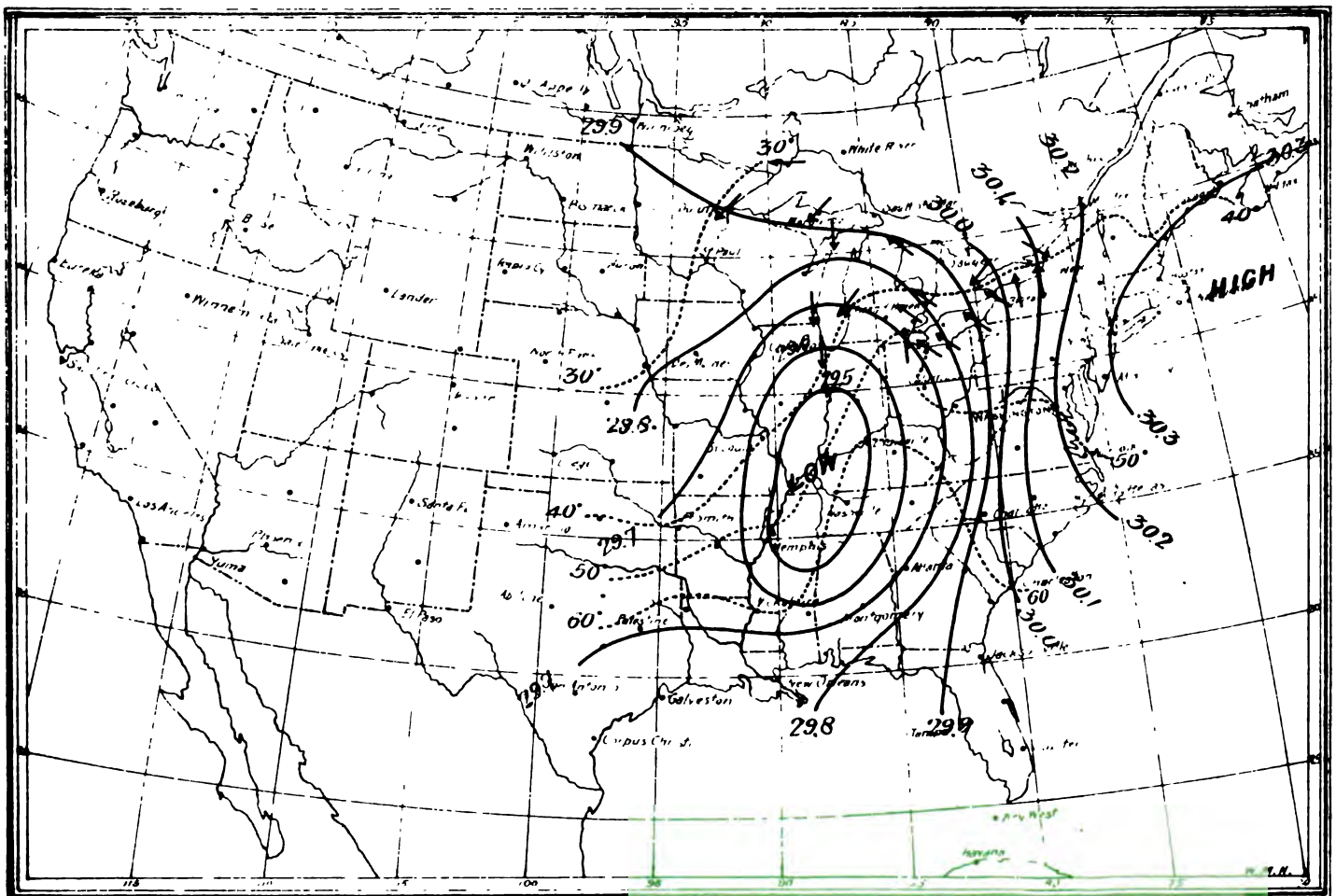


Chart XCI.

February 9, 1881—11 p. m.

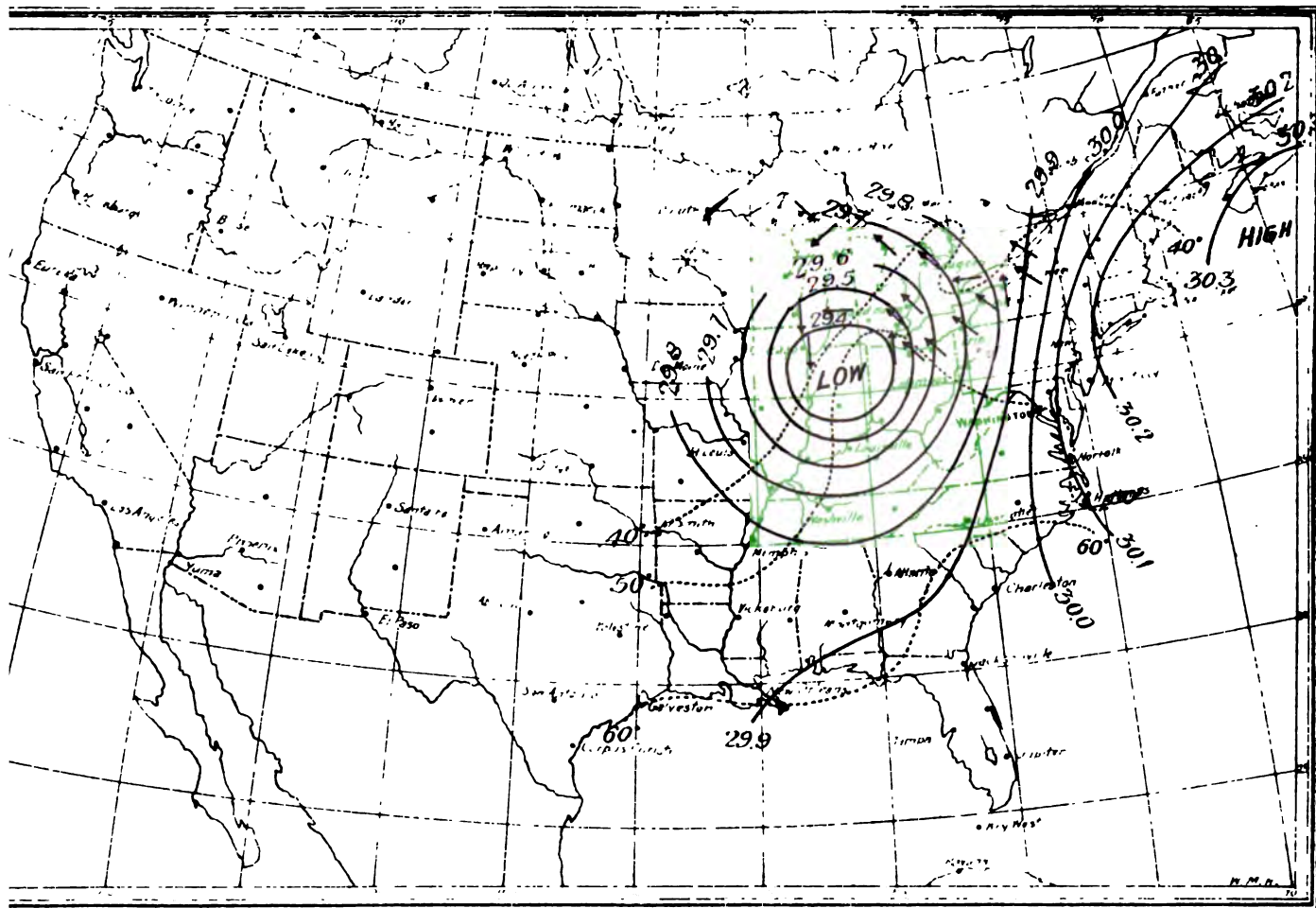


Chart XCII.

February 10, 1881—7 a. m.

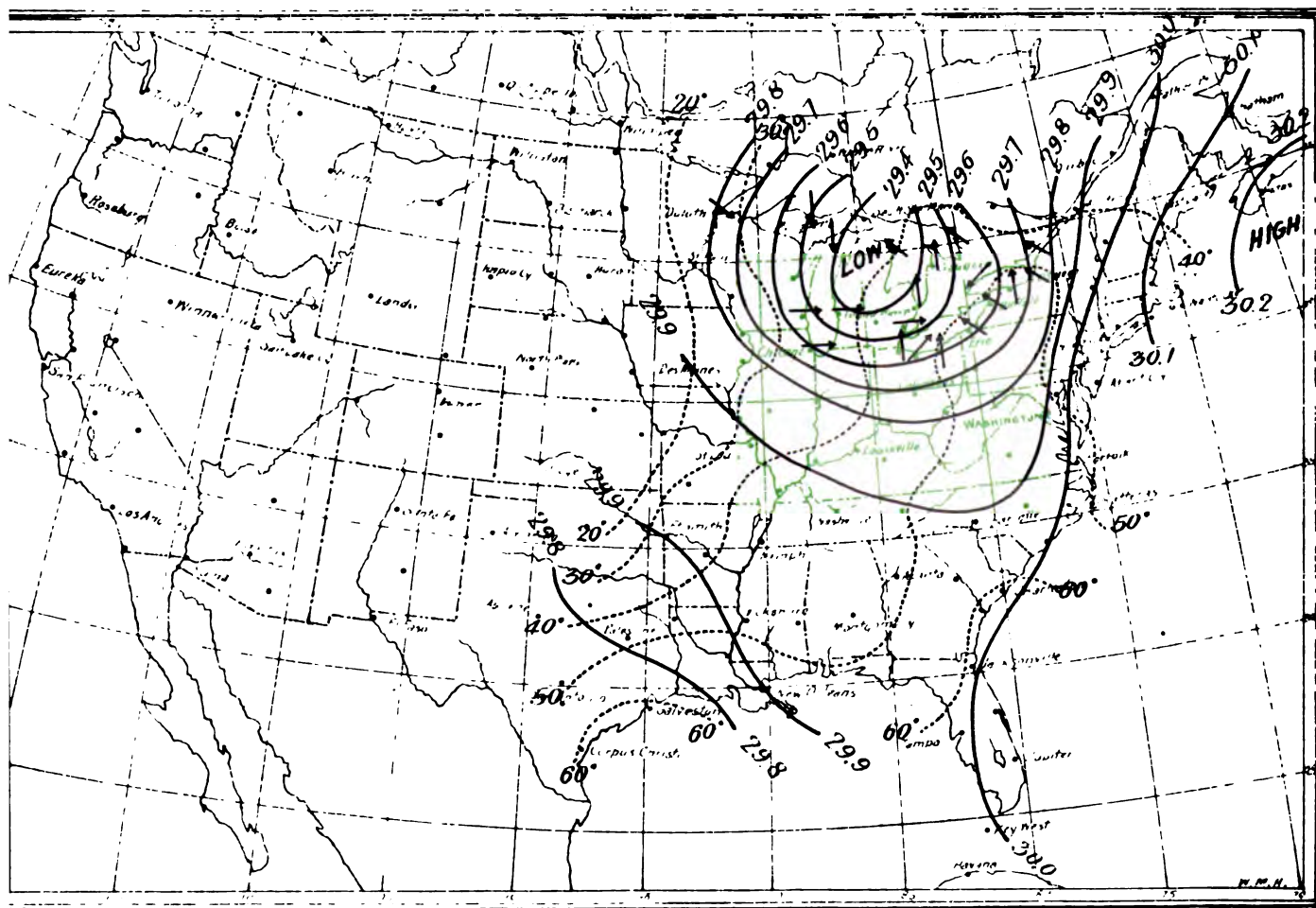


Chart XCIII.

February 11, 1881—7 a. m.

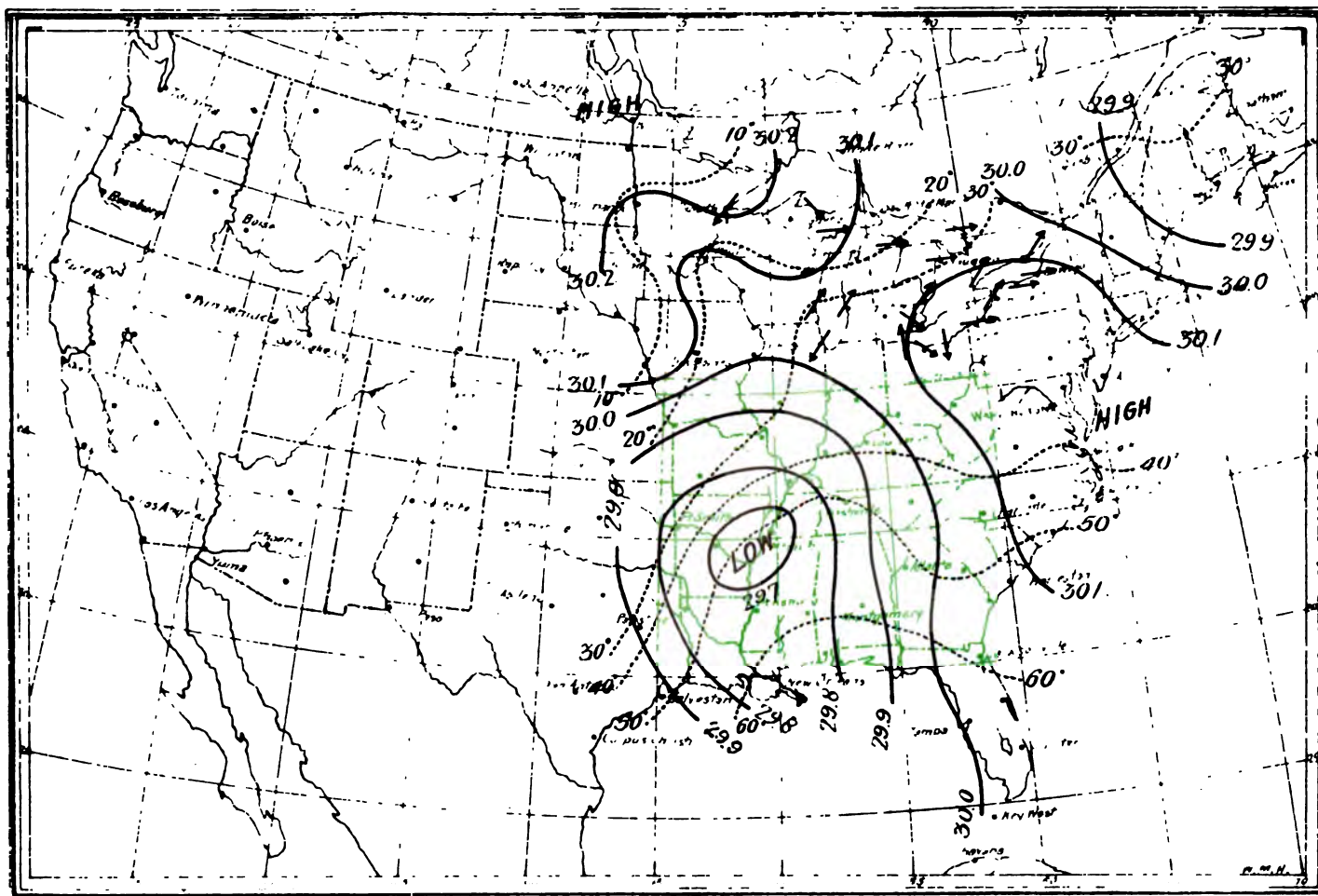


Chart XCIV.

February 11, 1881—3 p. m.

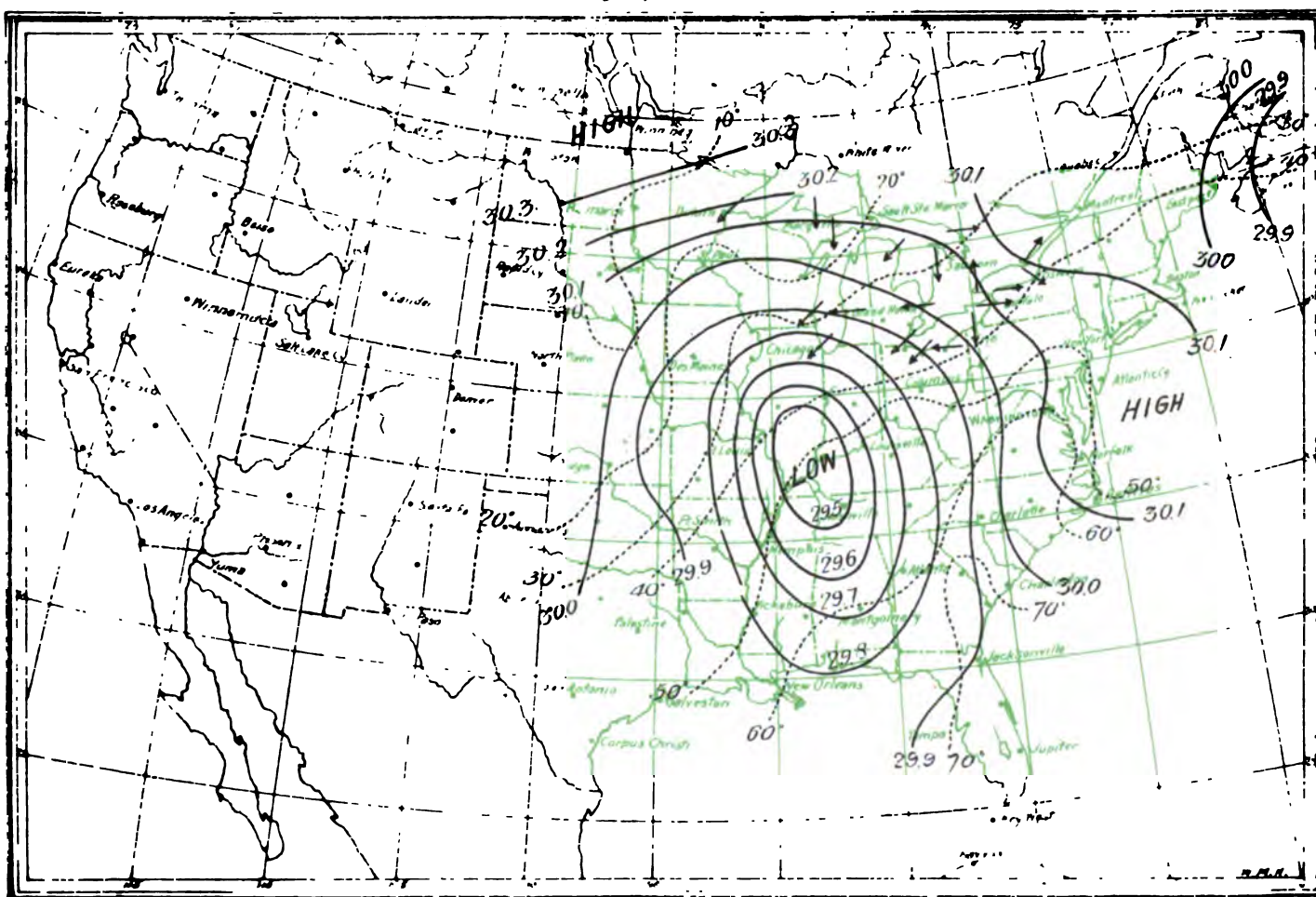


Chart XOV.

February 11, 1881—11 p. m.

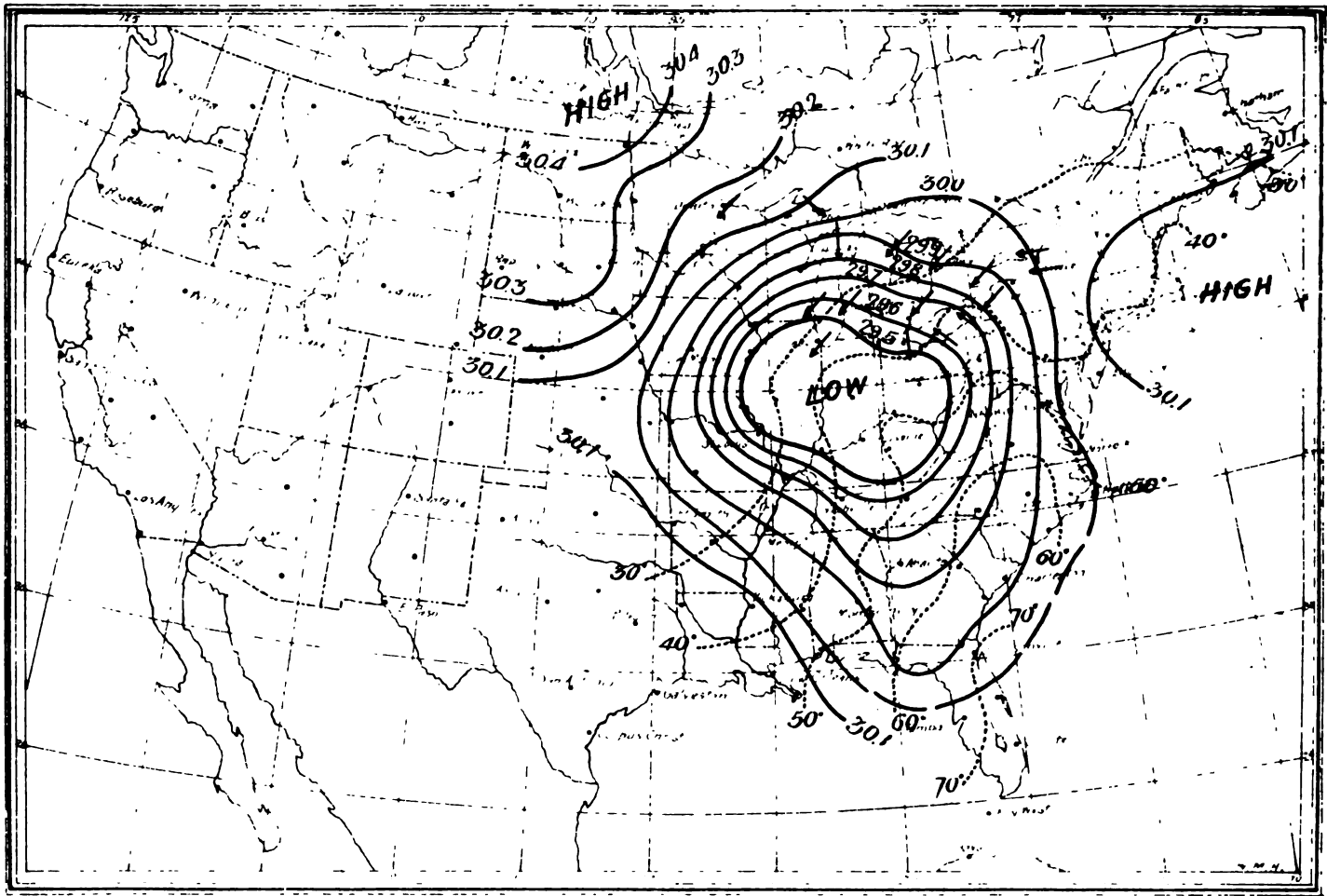


Chart XOV.

February 12, 1881—7 a. m.

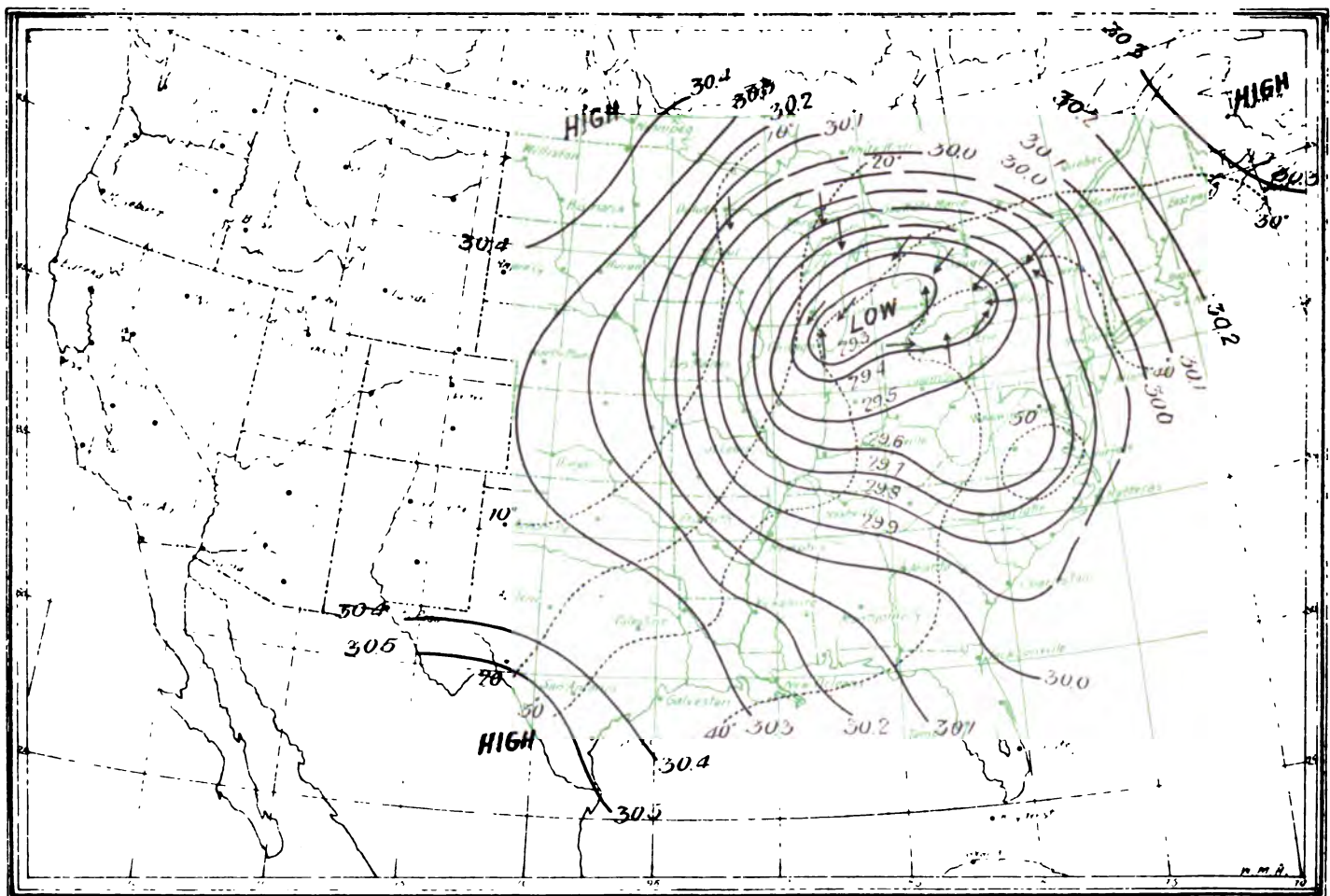


Chart XCVII.

February 18, 1884—11 p. m.

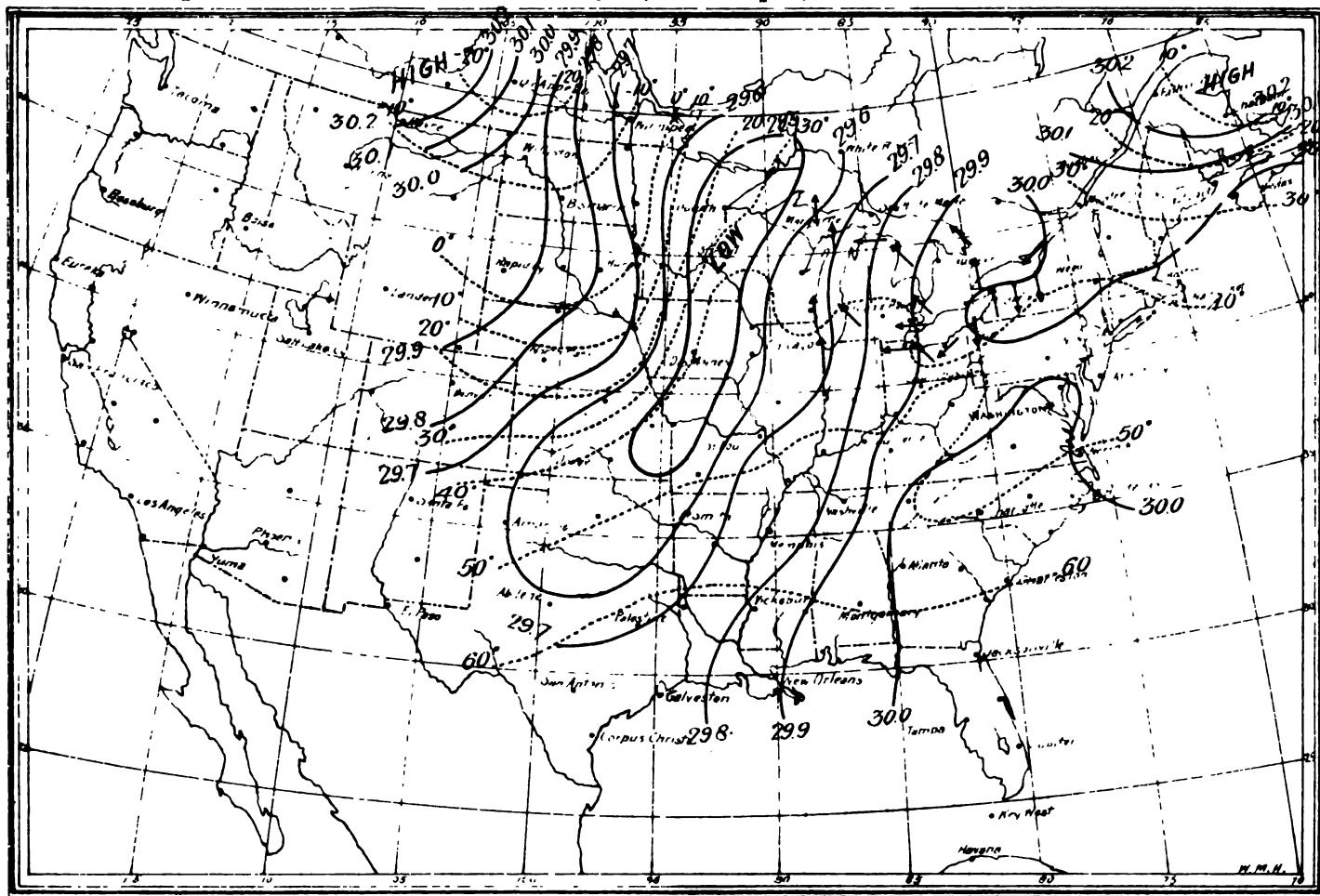


Chart XCVIII.

February 19, 1884—7 a. m.

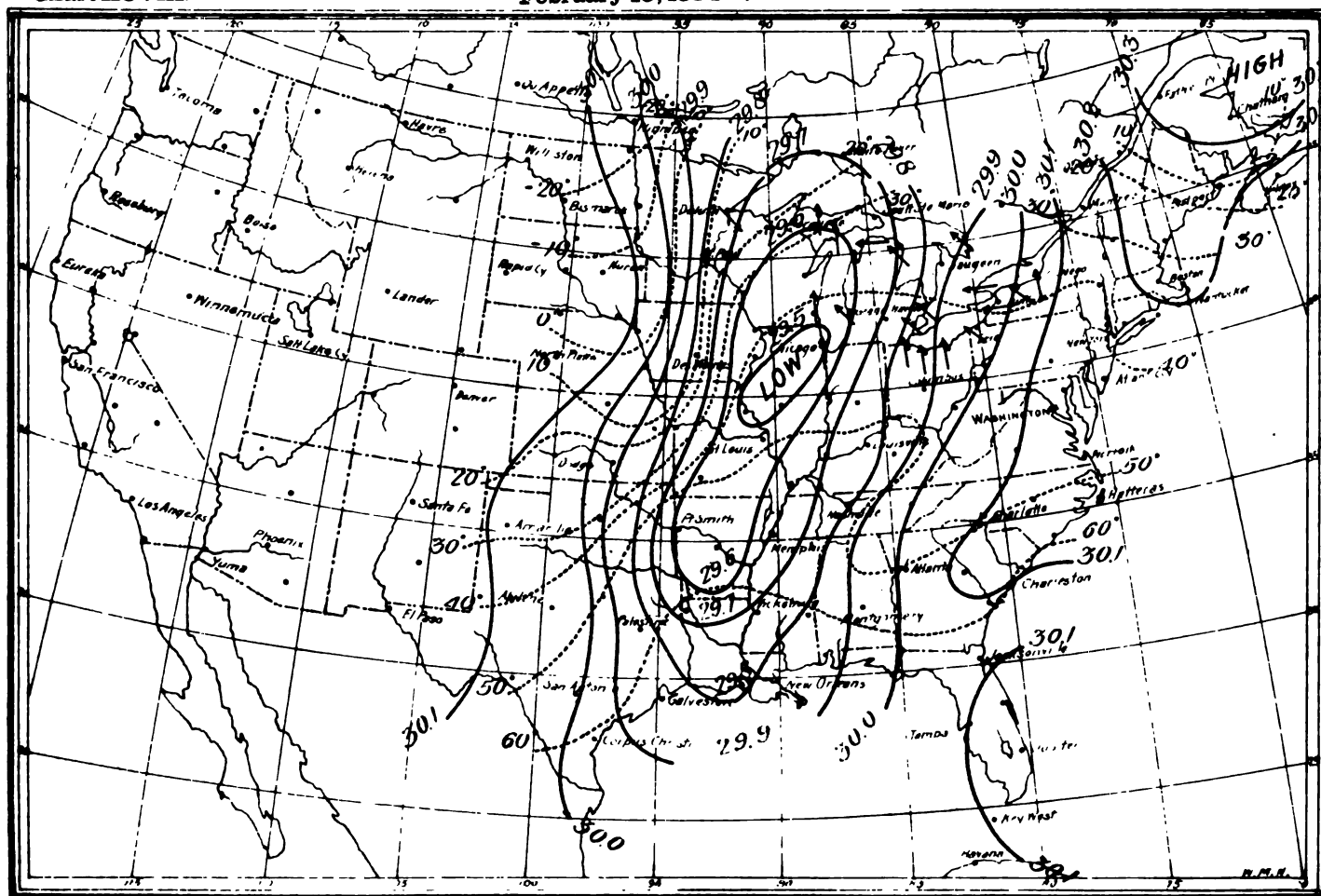


Chart XOLX

February 19, 1864—3 p. m.

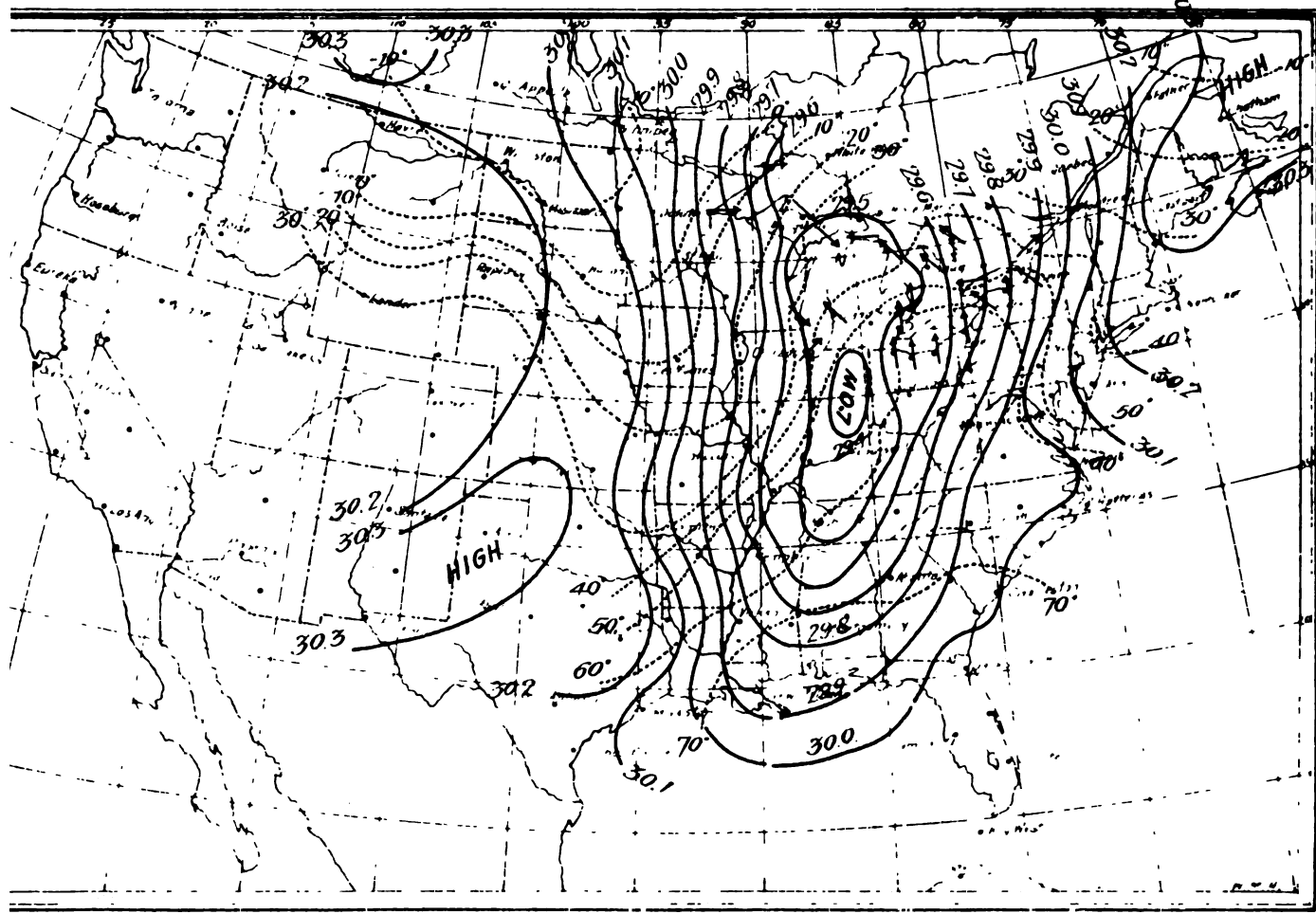


Chart C.

February 19, 1864—11 p. m.

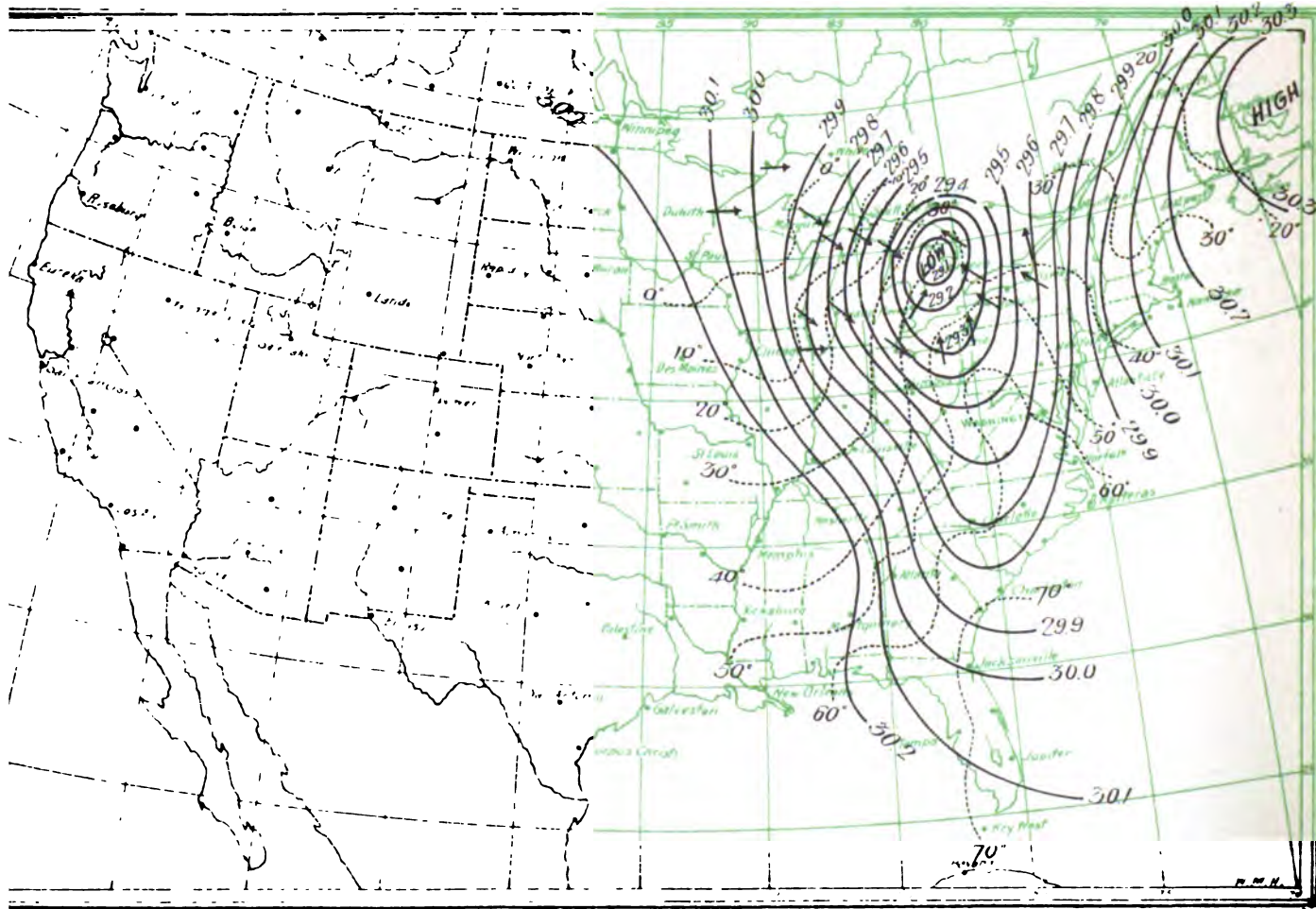


Chart OI.

February 9, 1885—7 a. m.

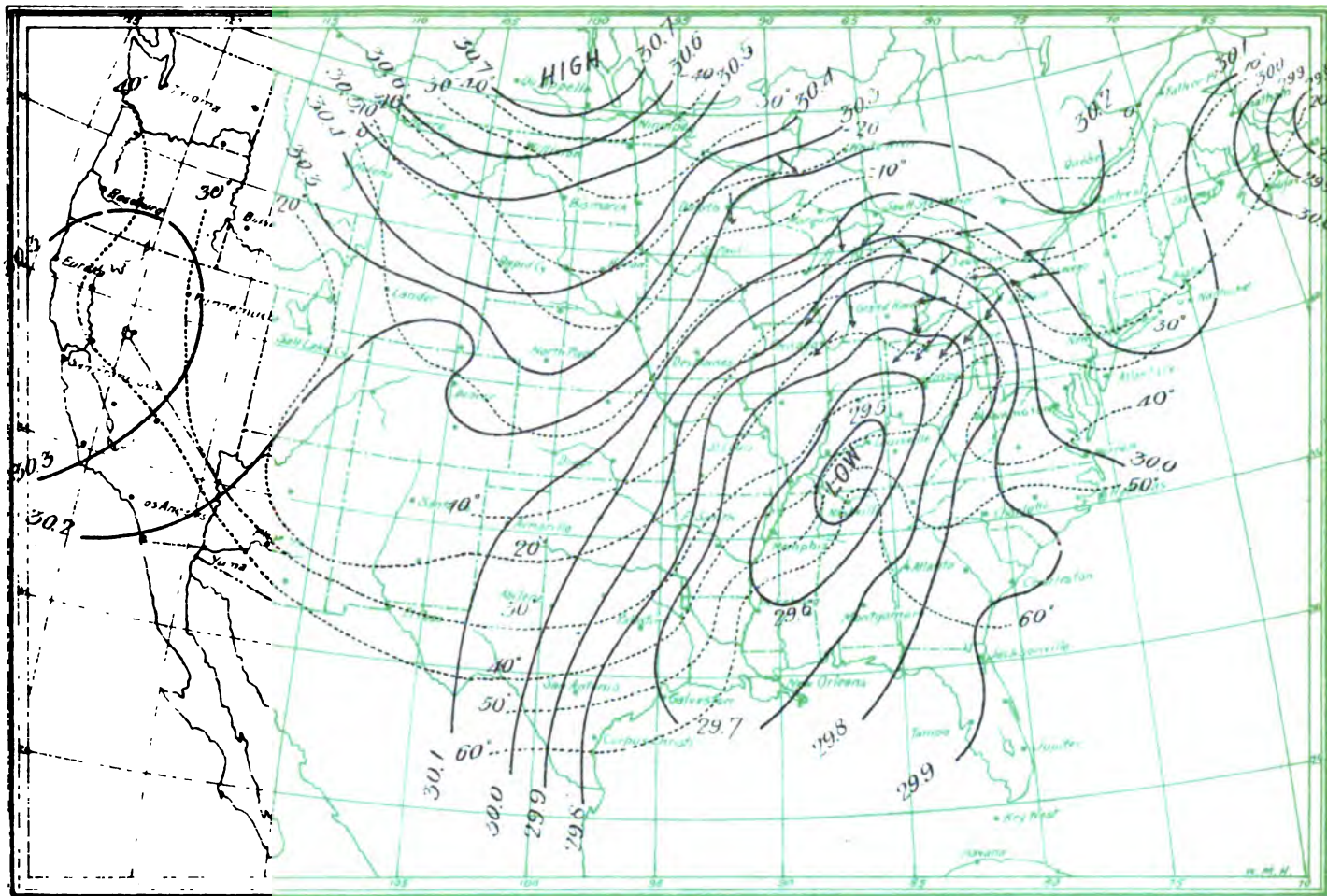


Chart OII.

February 9, 1885—3 p. m.

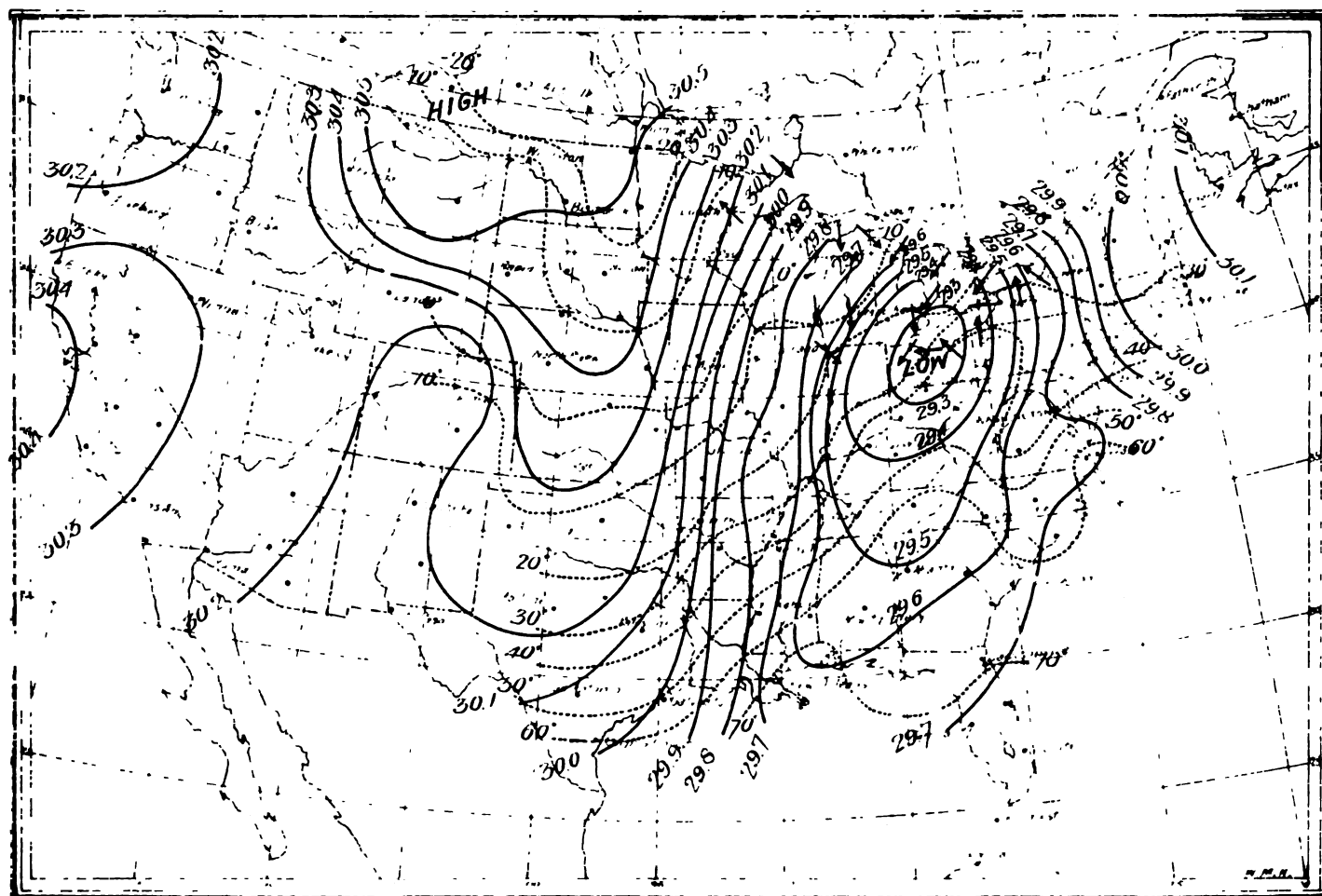


Chart OIII.

February 9, 1885—11 p. m.

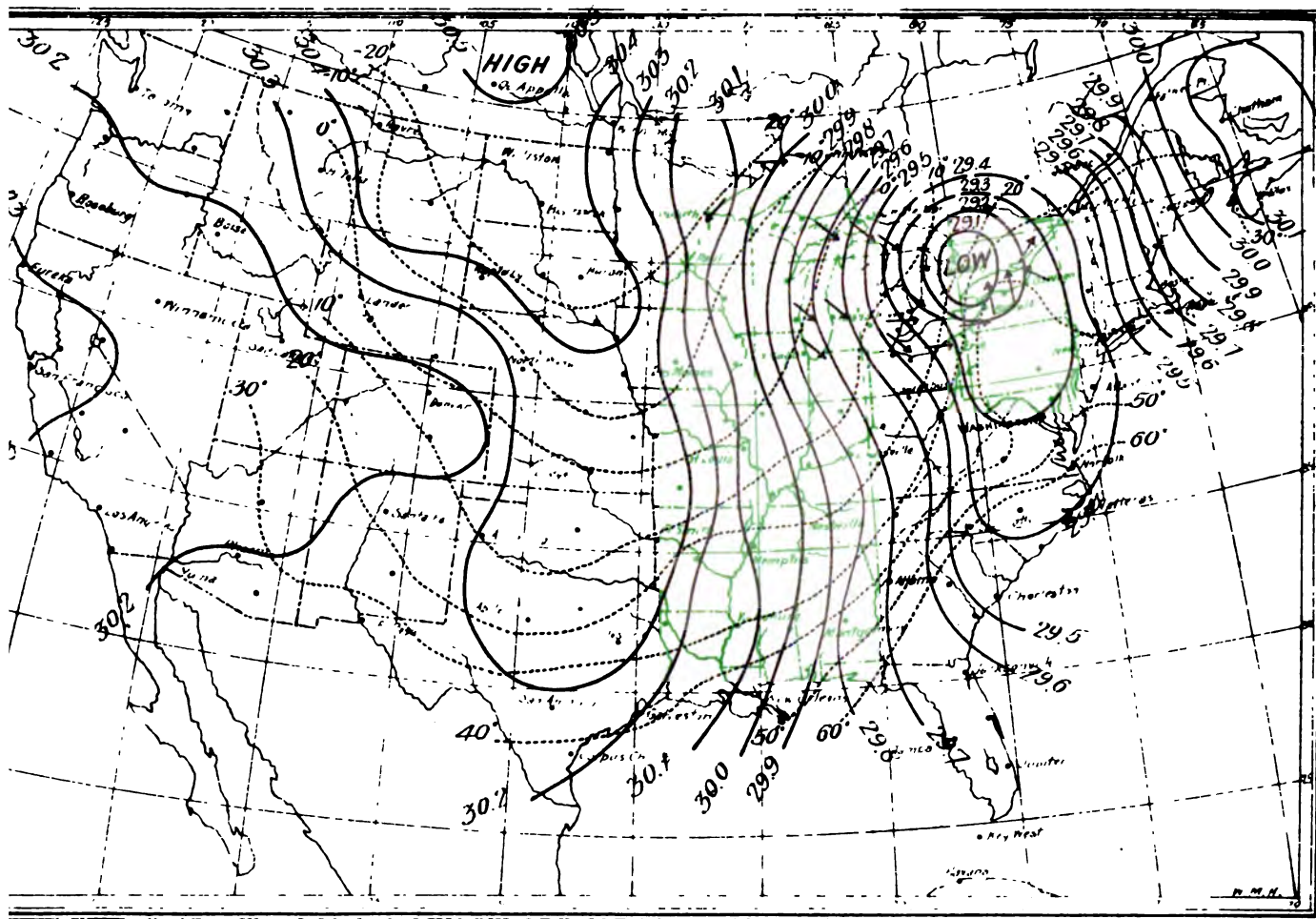


Chart OIV.

February 10, 1885—7 a. m.

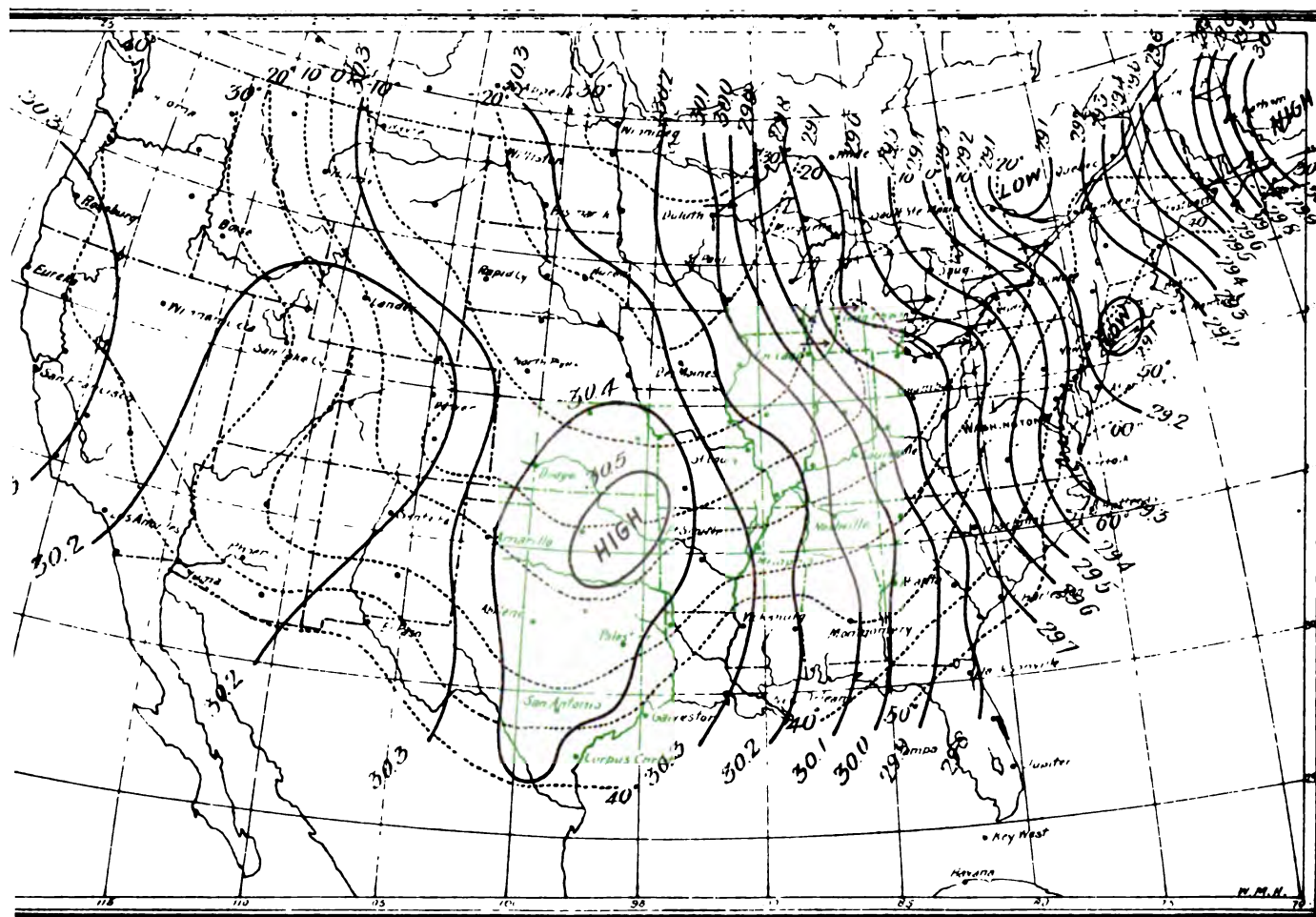


Chart OV.

February 25, 1887—3 p. m.

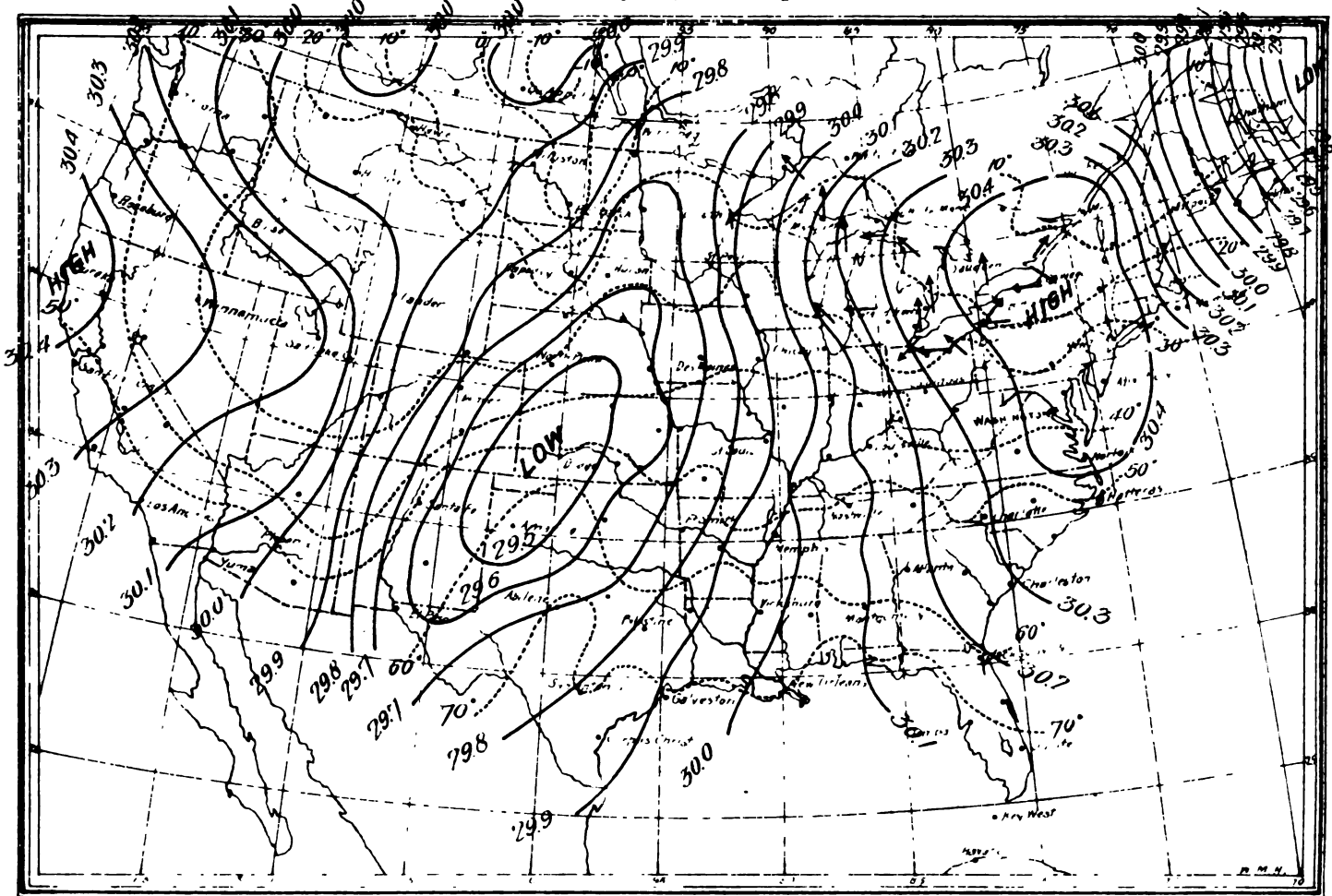


Chart OVI.

February 25, 1887—10 p. m.

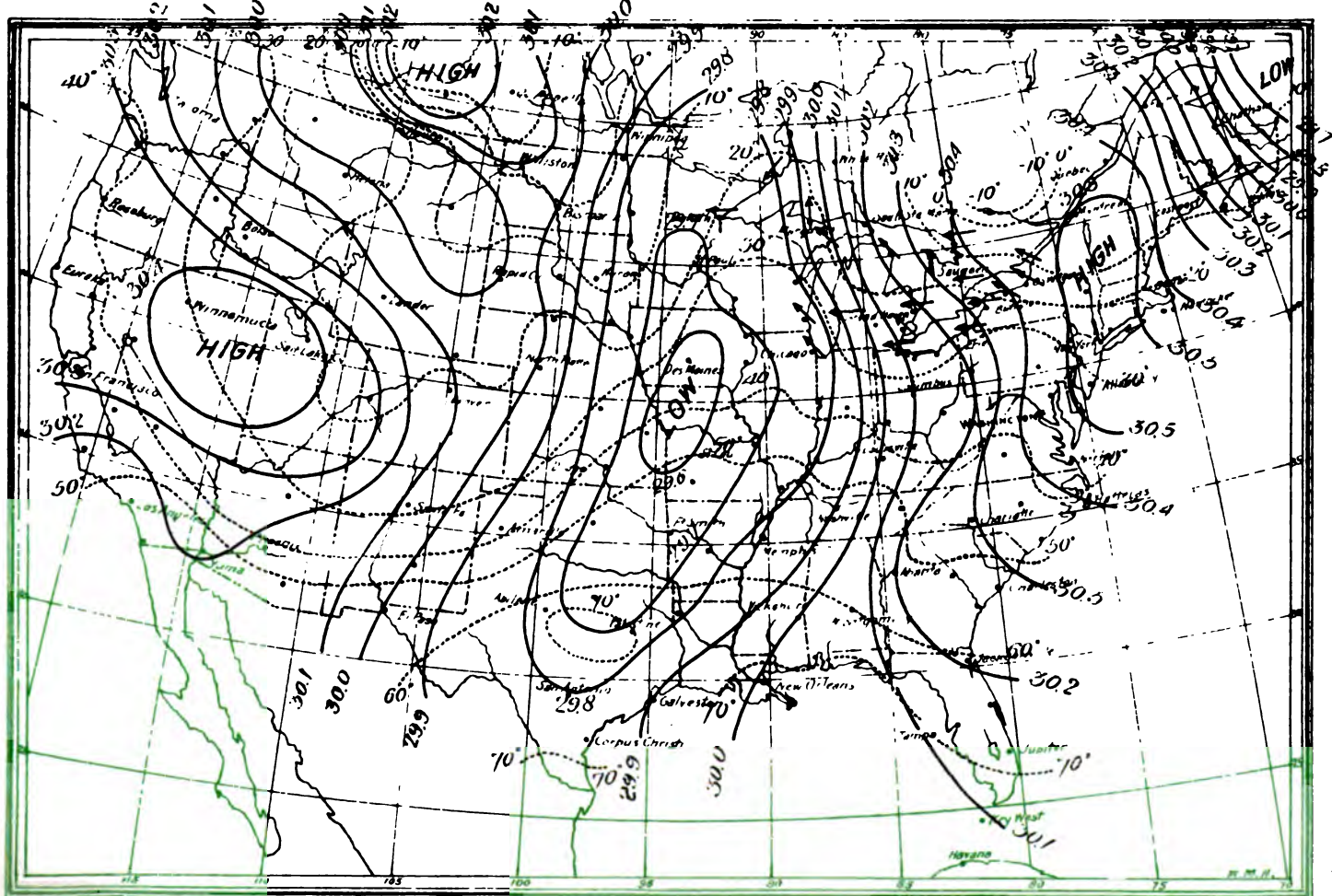


Chart OVII.

February 26, 1887—7 a. m.

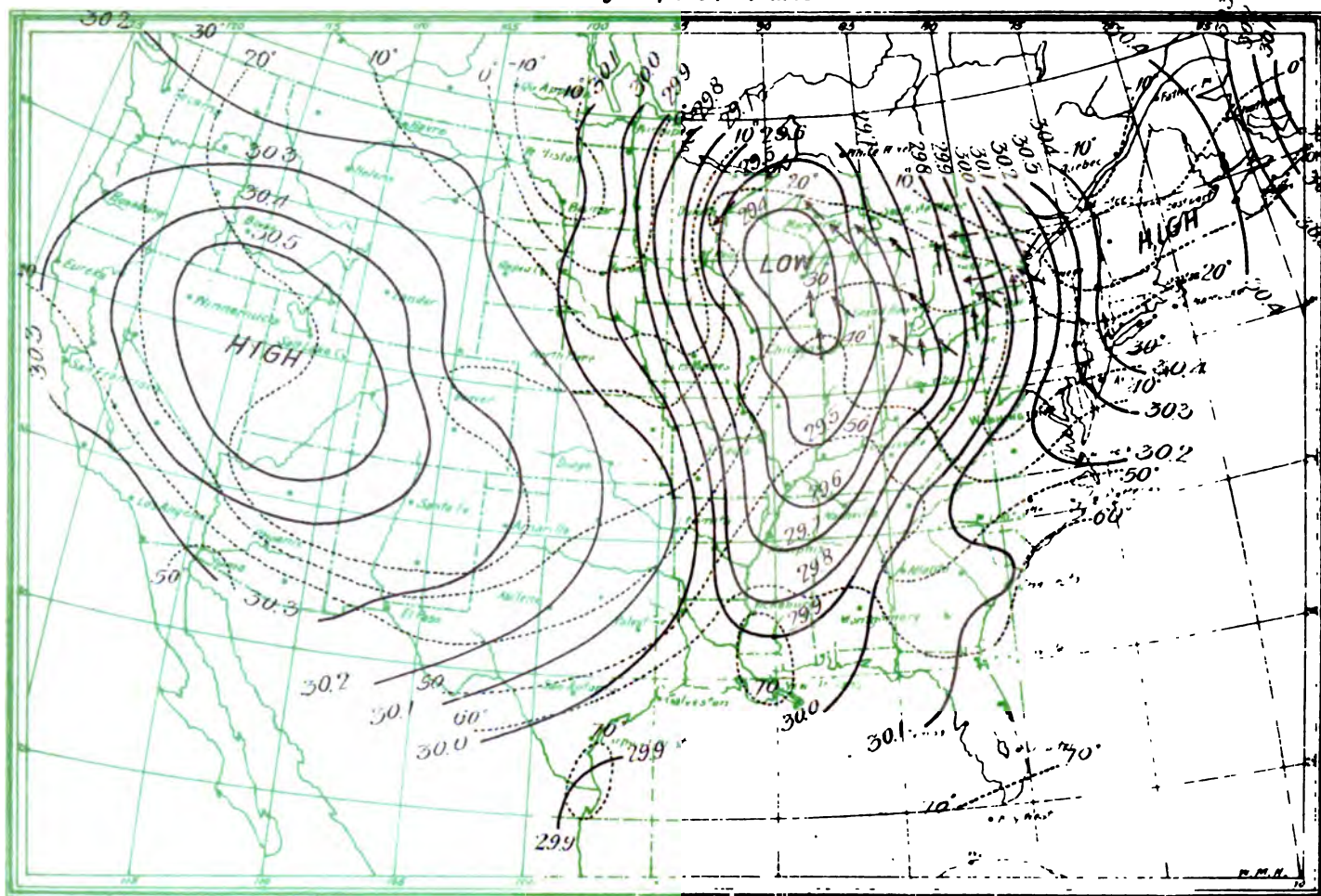


Chart OVIII.

February 26, 1887—3 p. m.

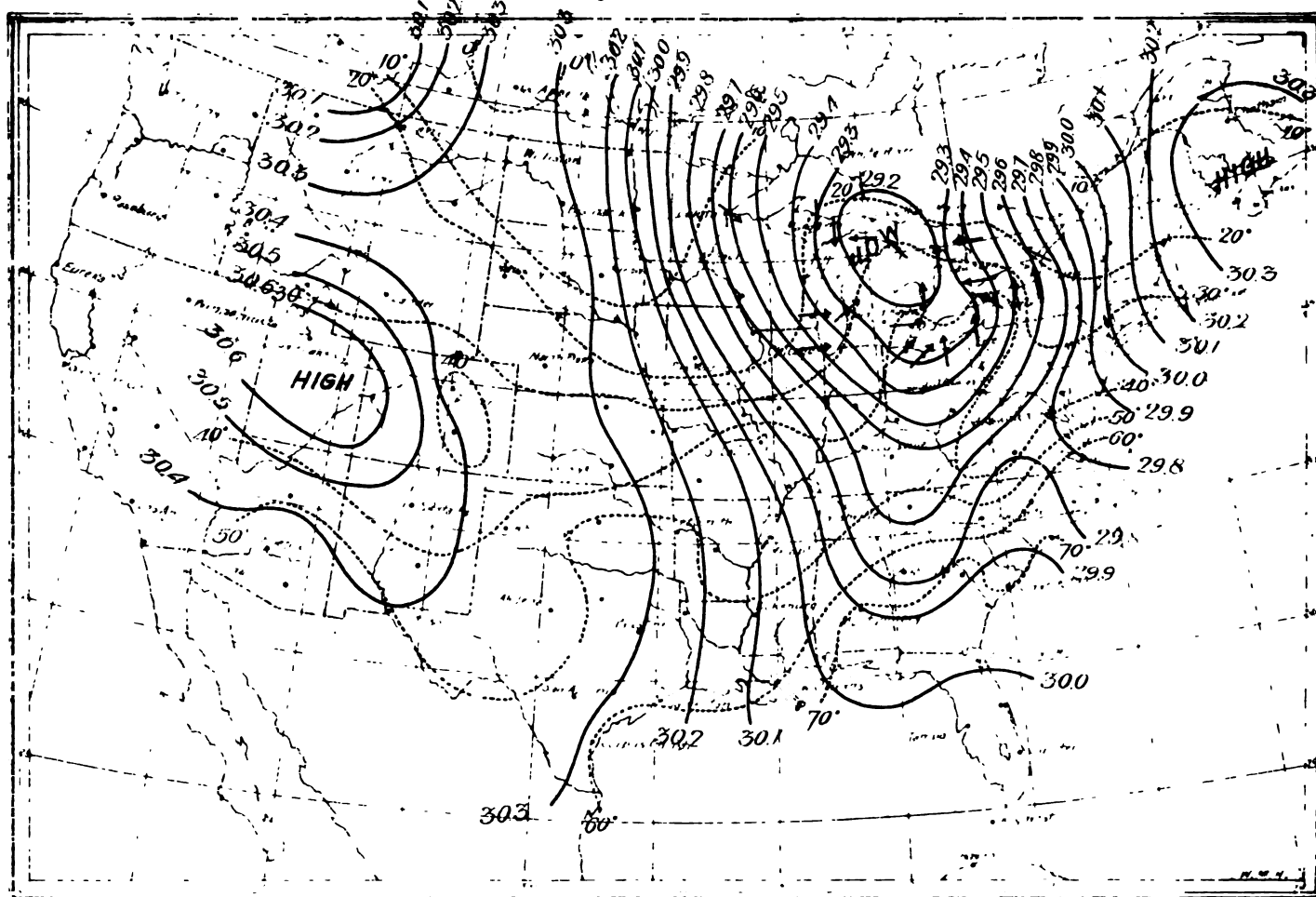


Chart OIX.

February 23, 1888—10 p. m.

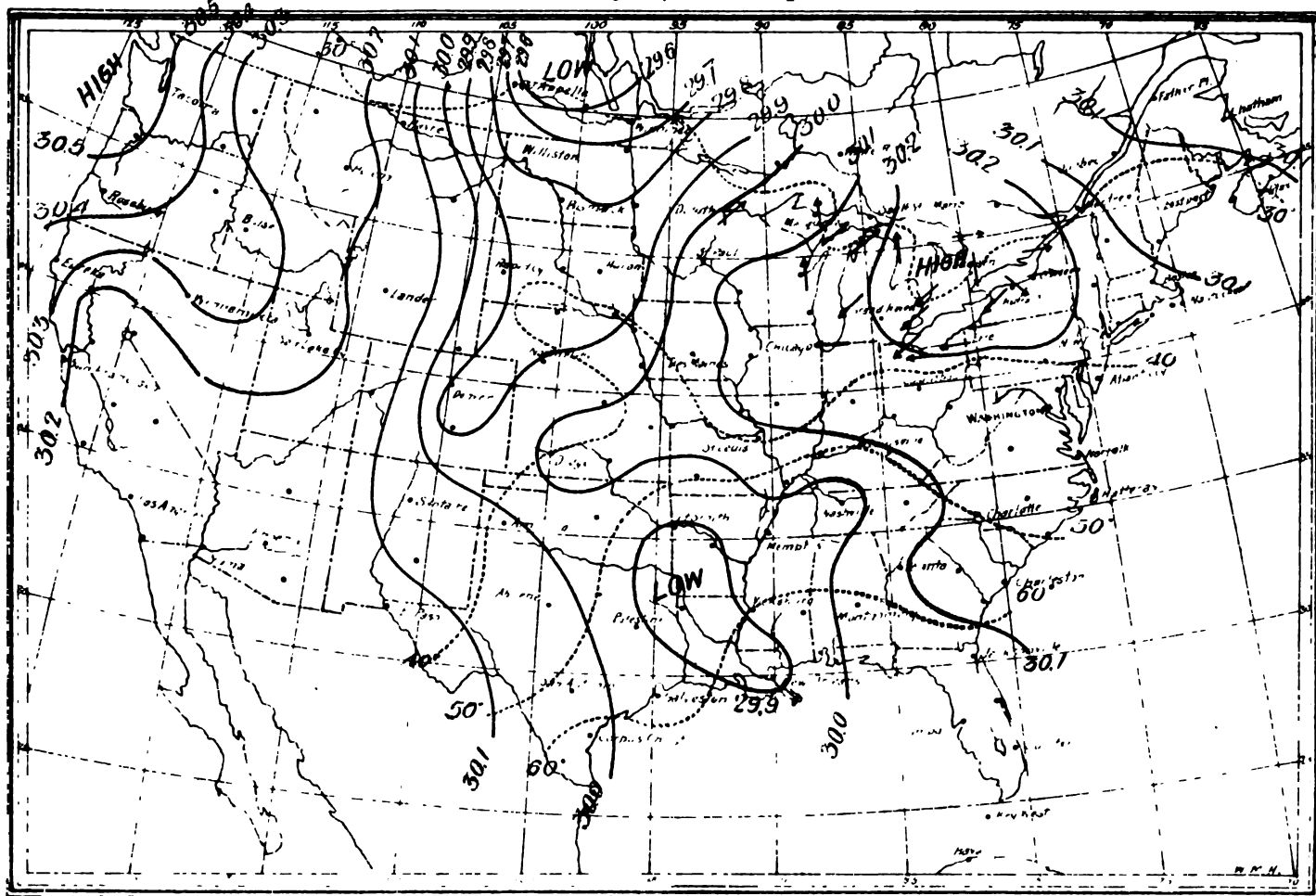


Chart OX.

February 24, 1888—7 a. m.

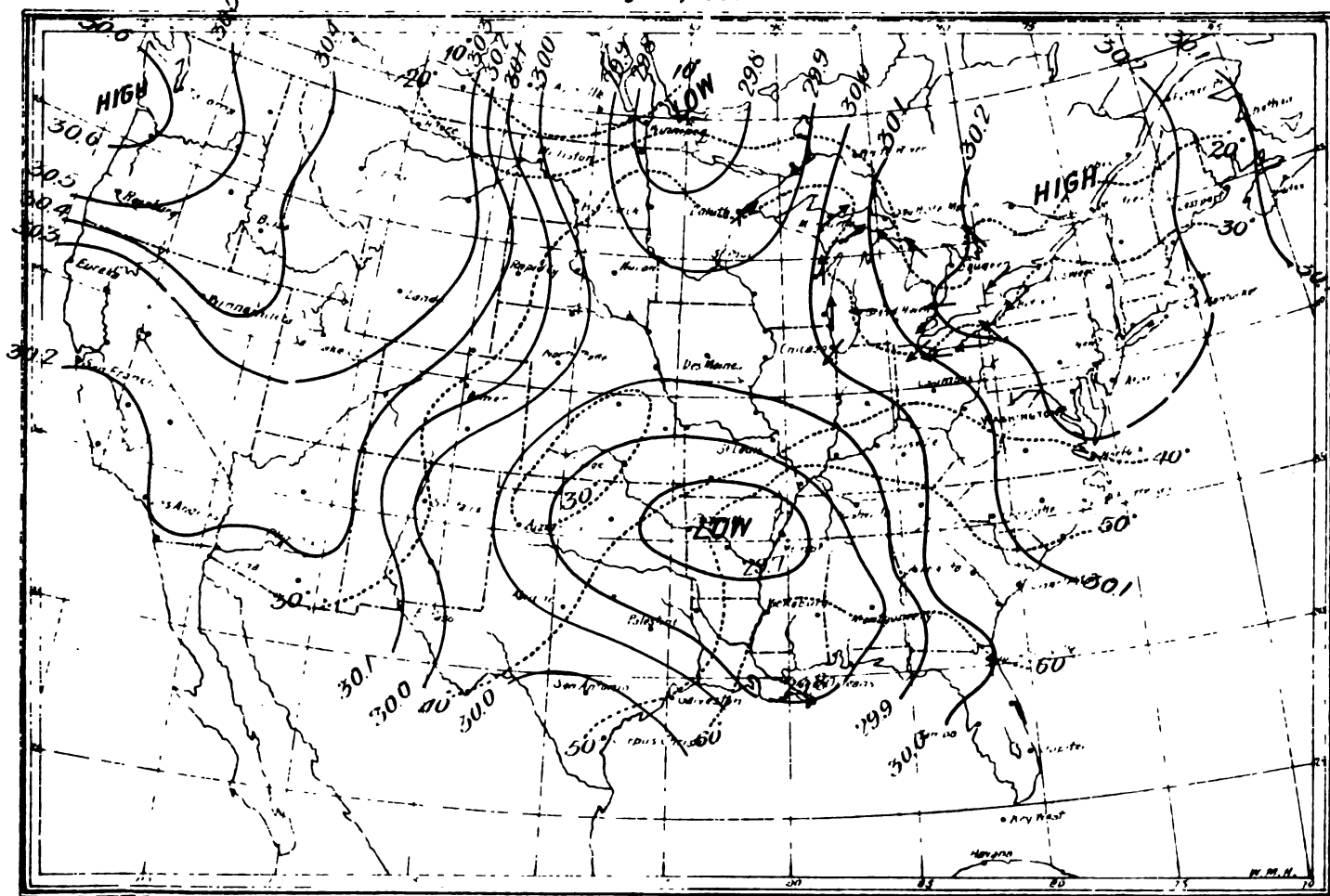


Chart OXI.

February 24, 1888—3 p. m.

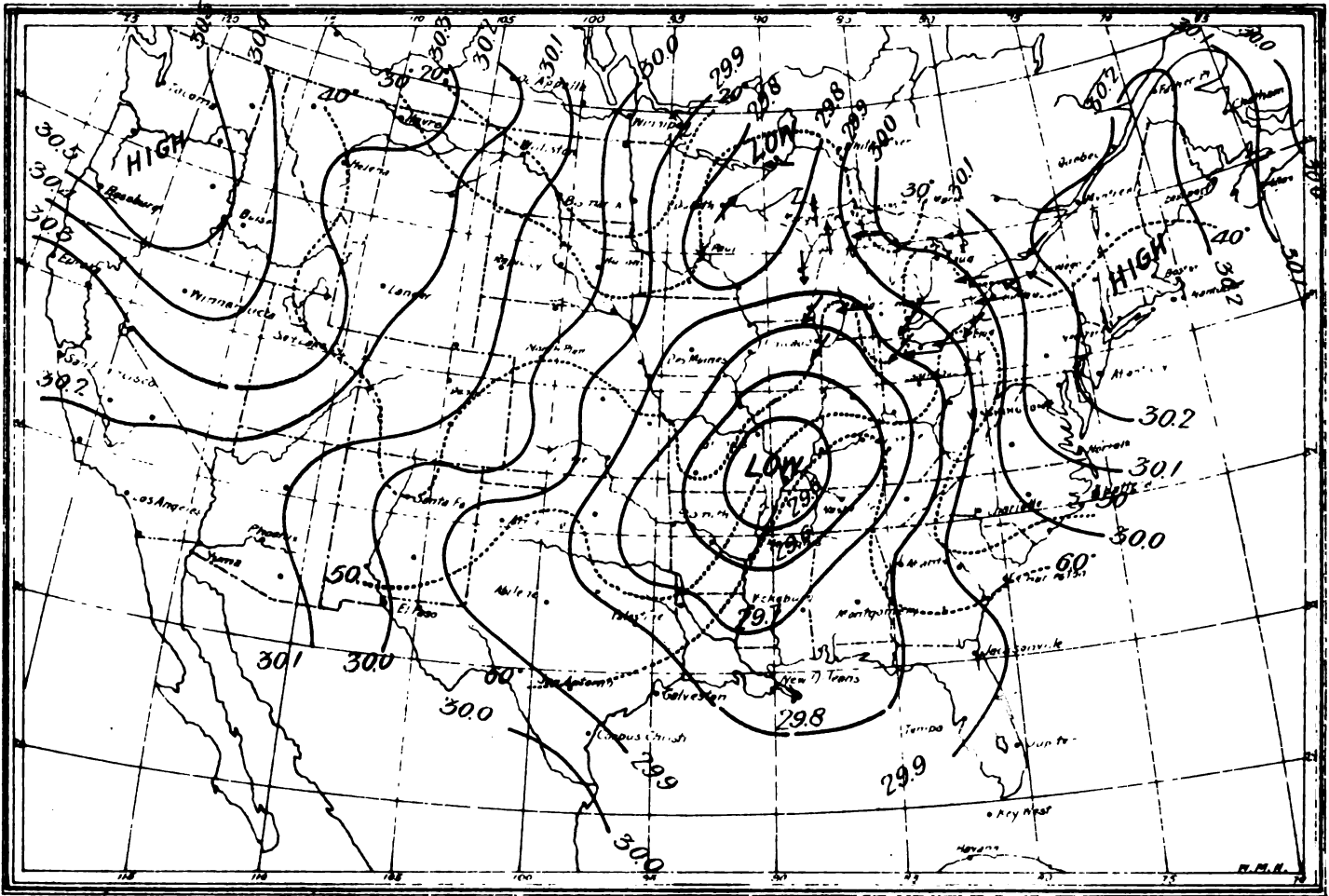
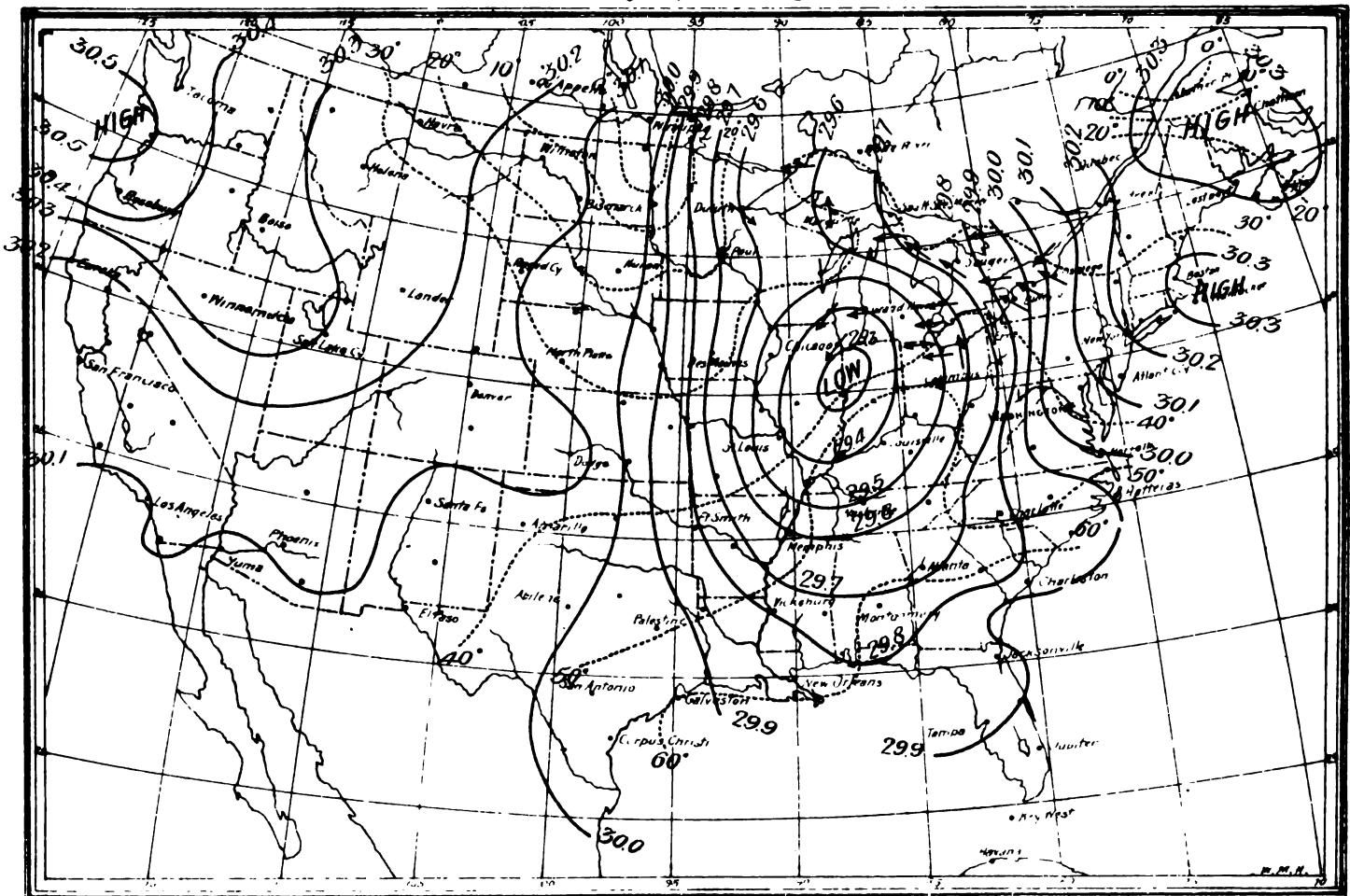


Chart OXII.

February 24, 1888—10 p. m.



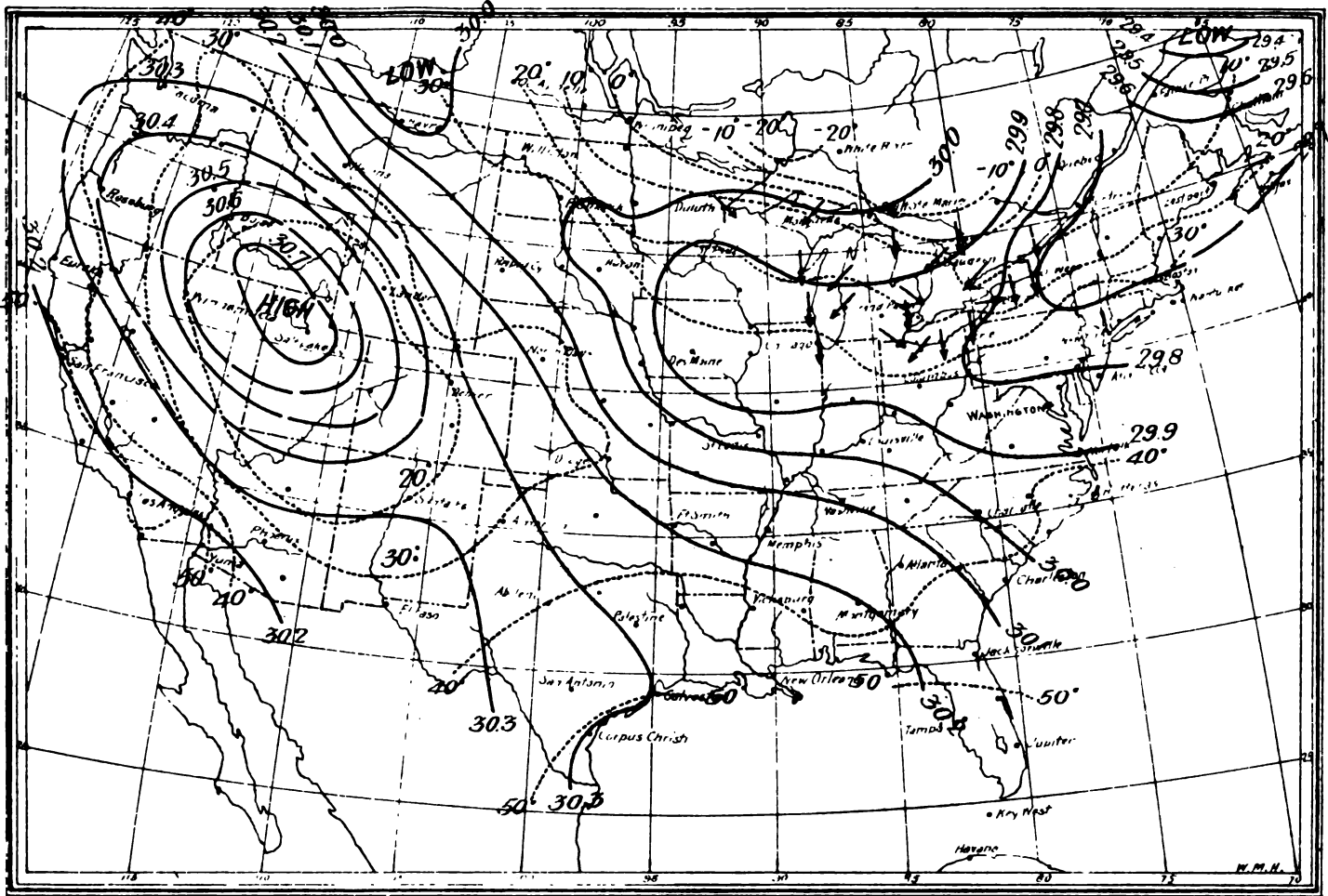


Chart OXIV.

February 8, 1889—8 p. m.

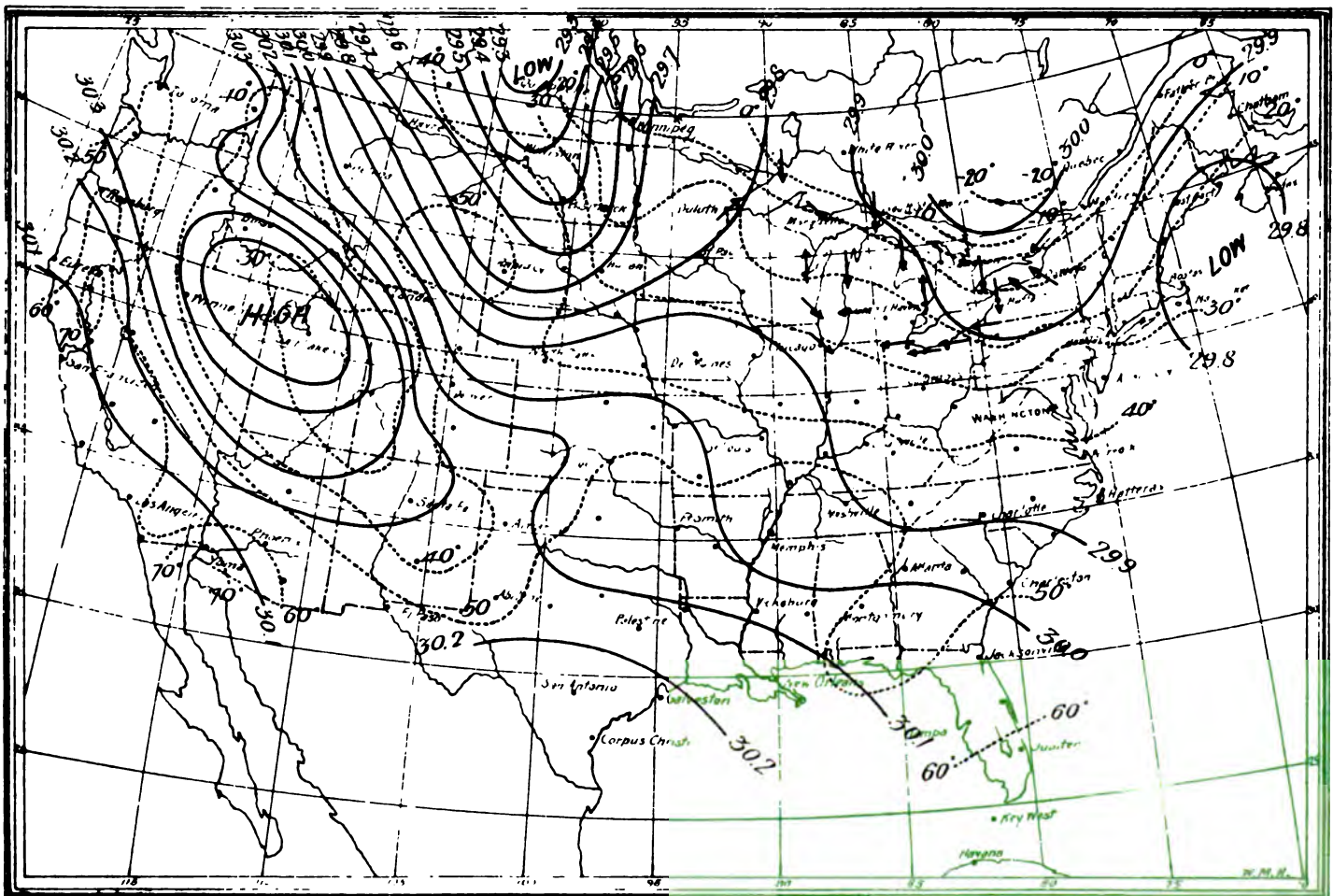


Chart OXV.

February 4, 1889—8 a. m.

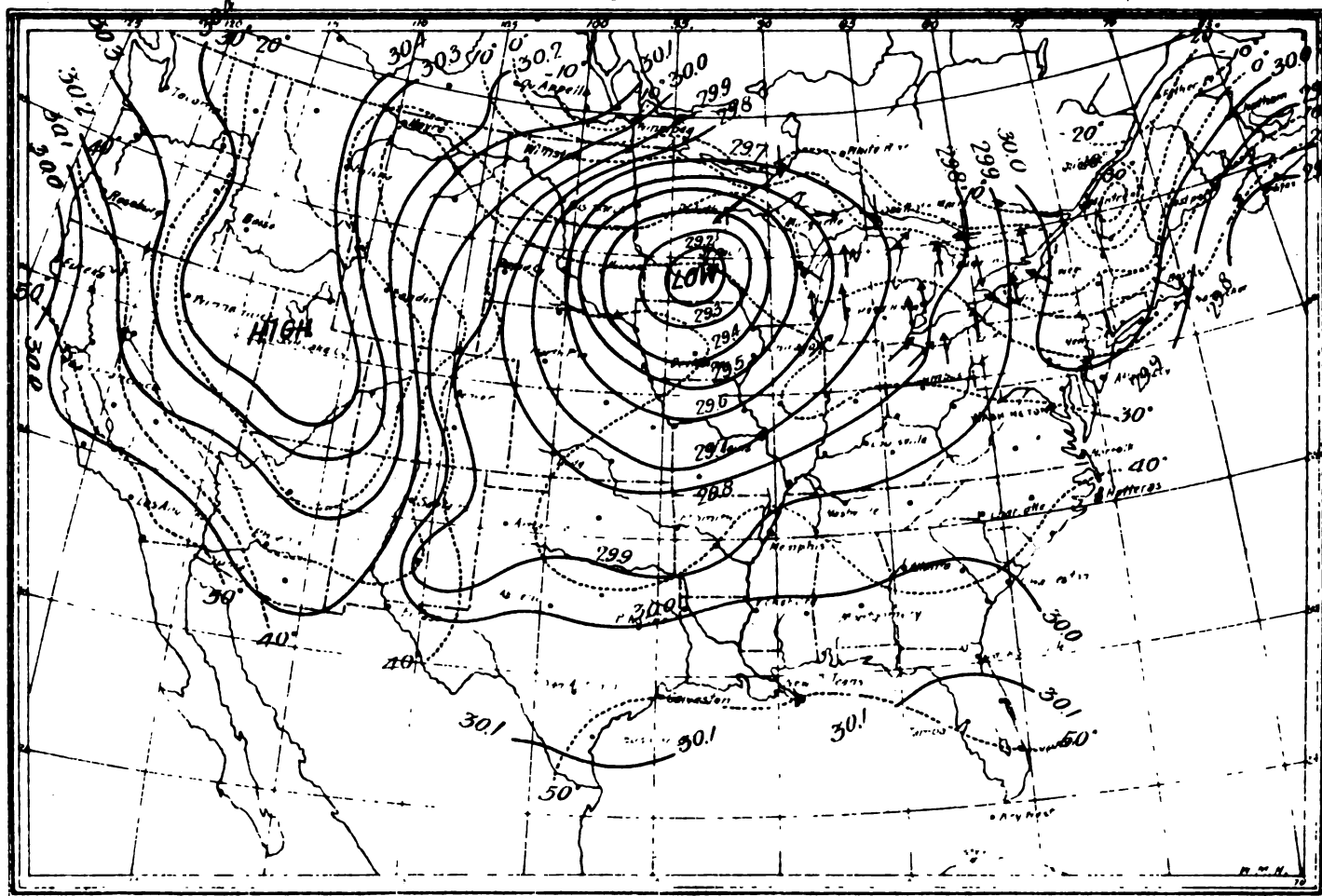
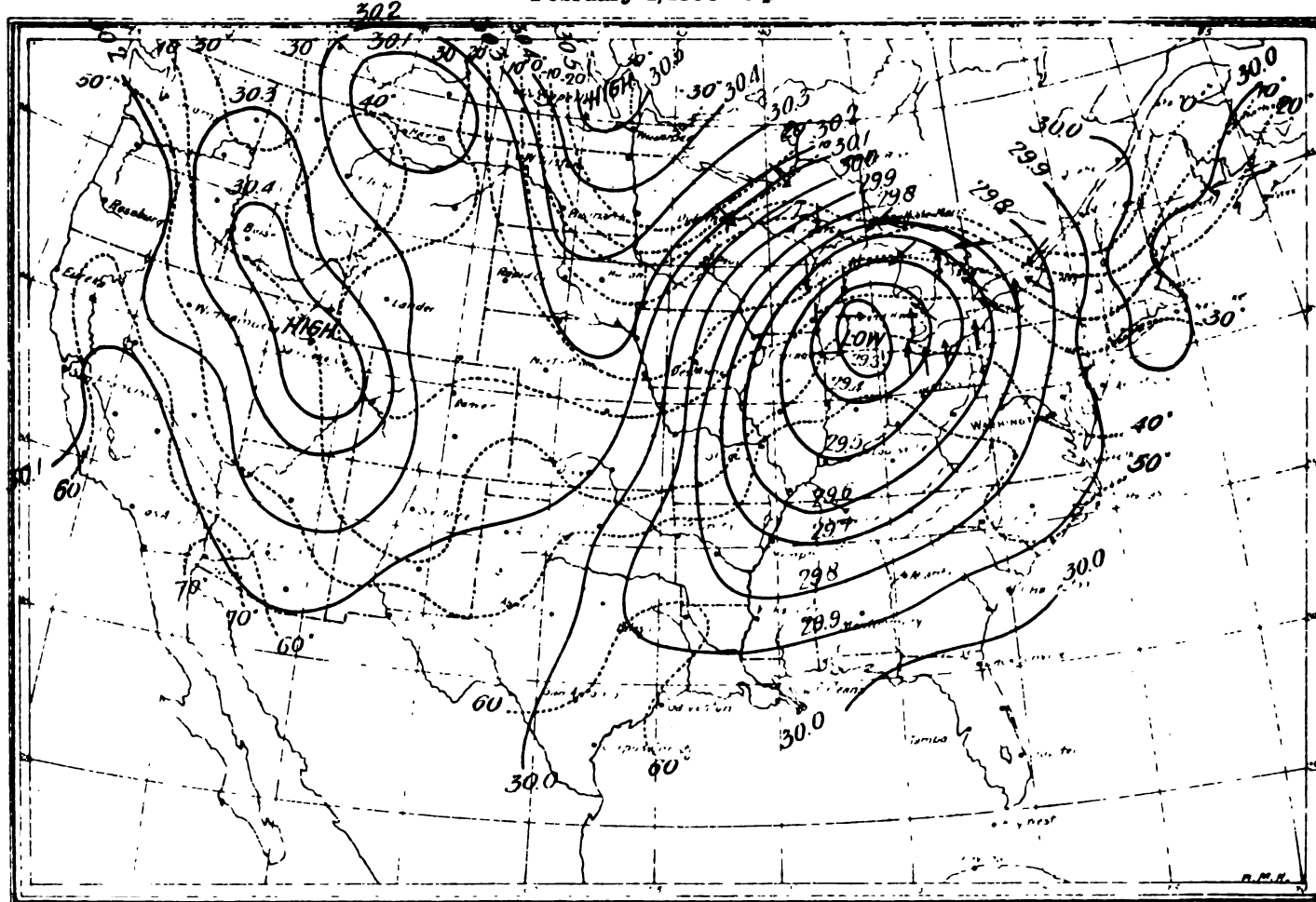
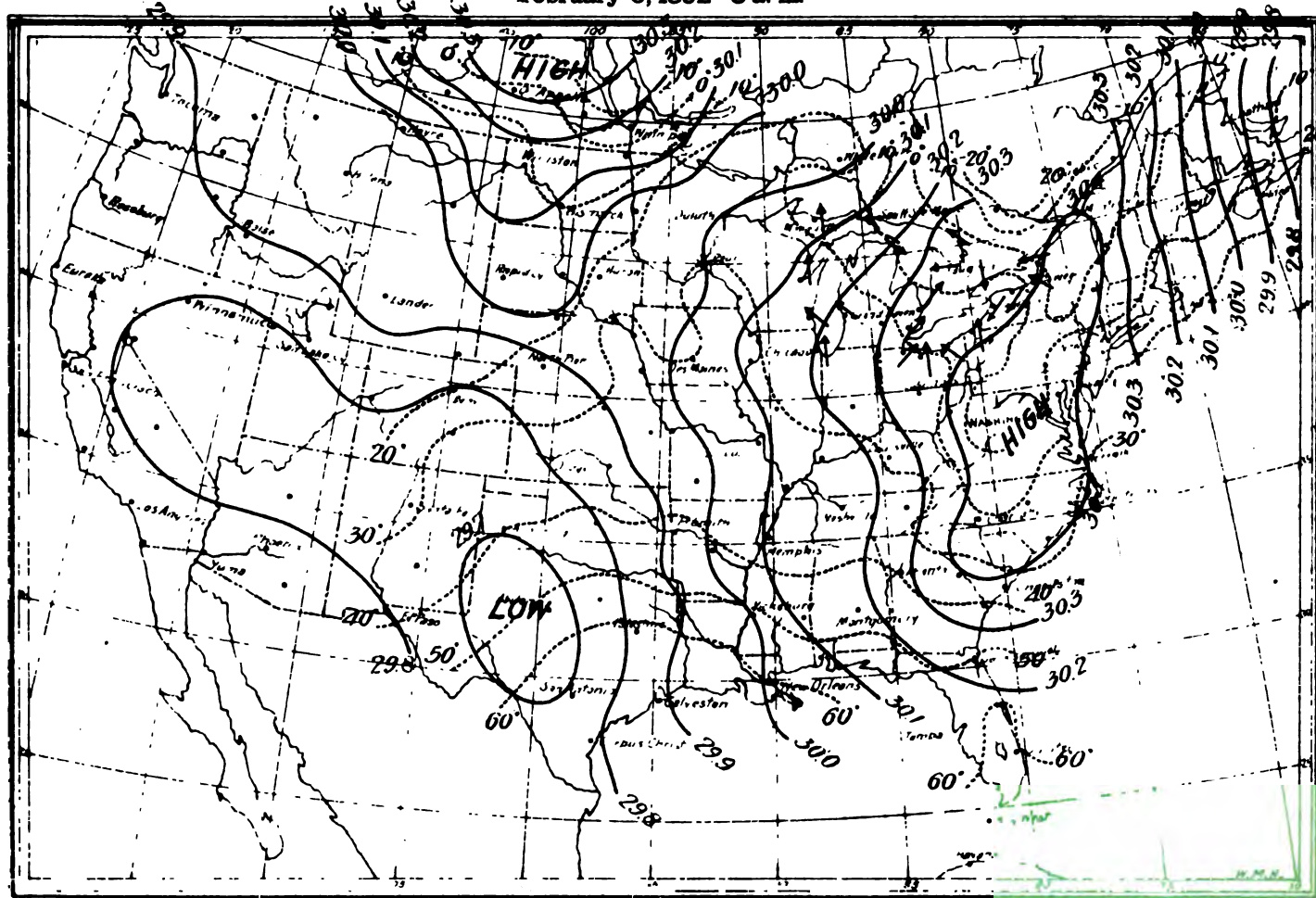


Chart OXVI.

February 4, 1889—8 p. m.





February 6, 1892--8 p. m.

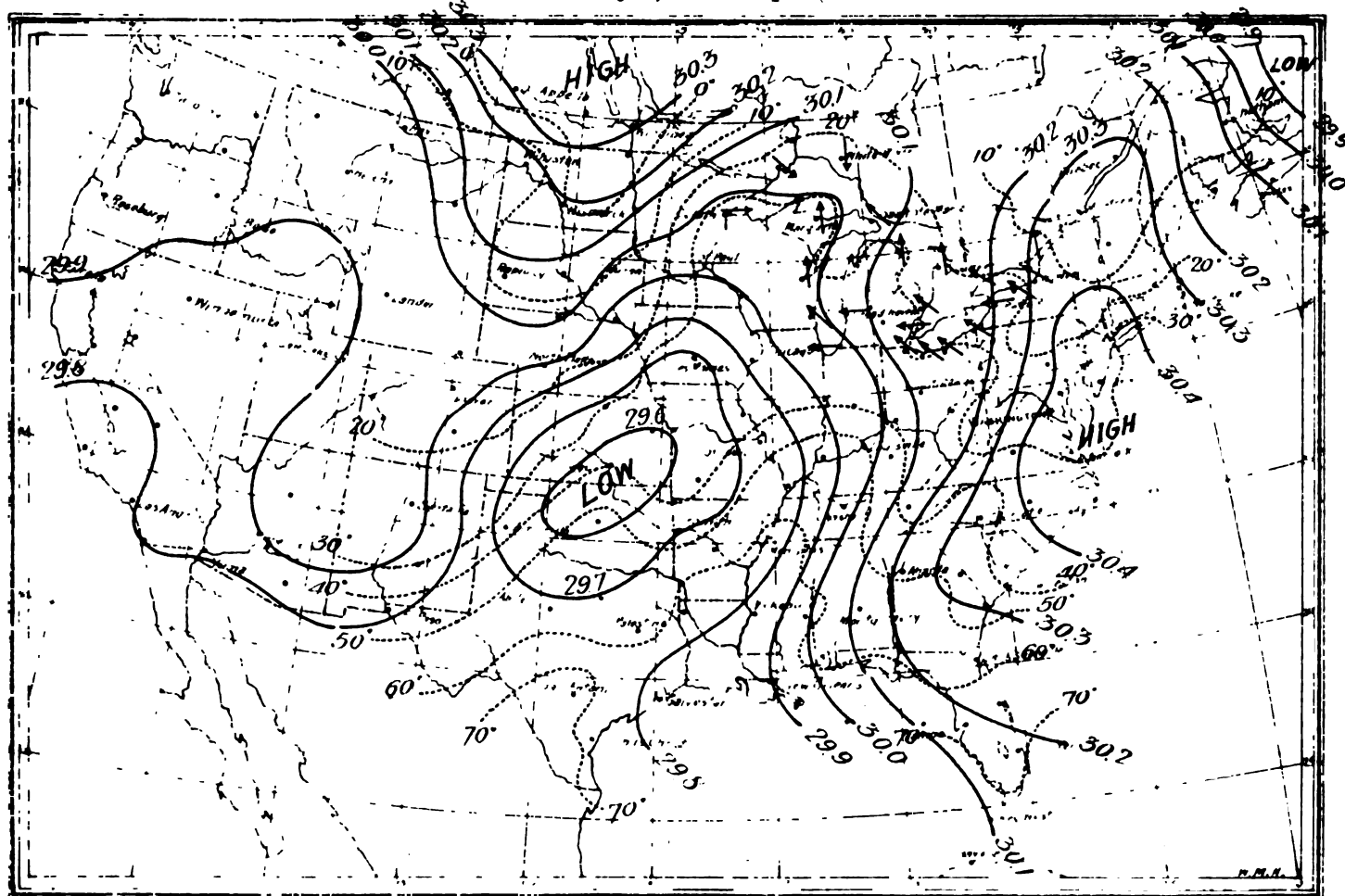


Chart CXIX.

February 7, 1892—8 a. m.

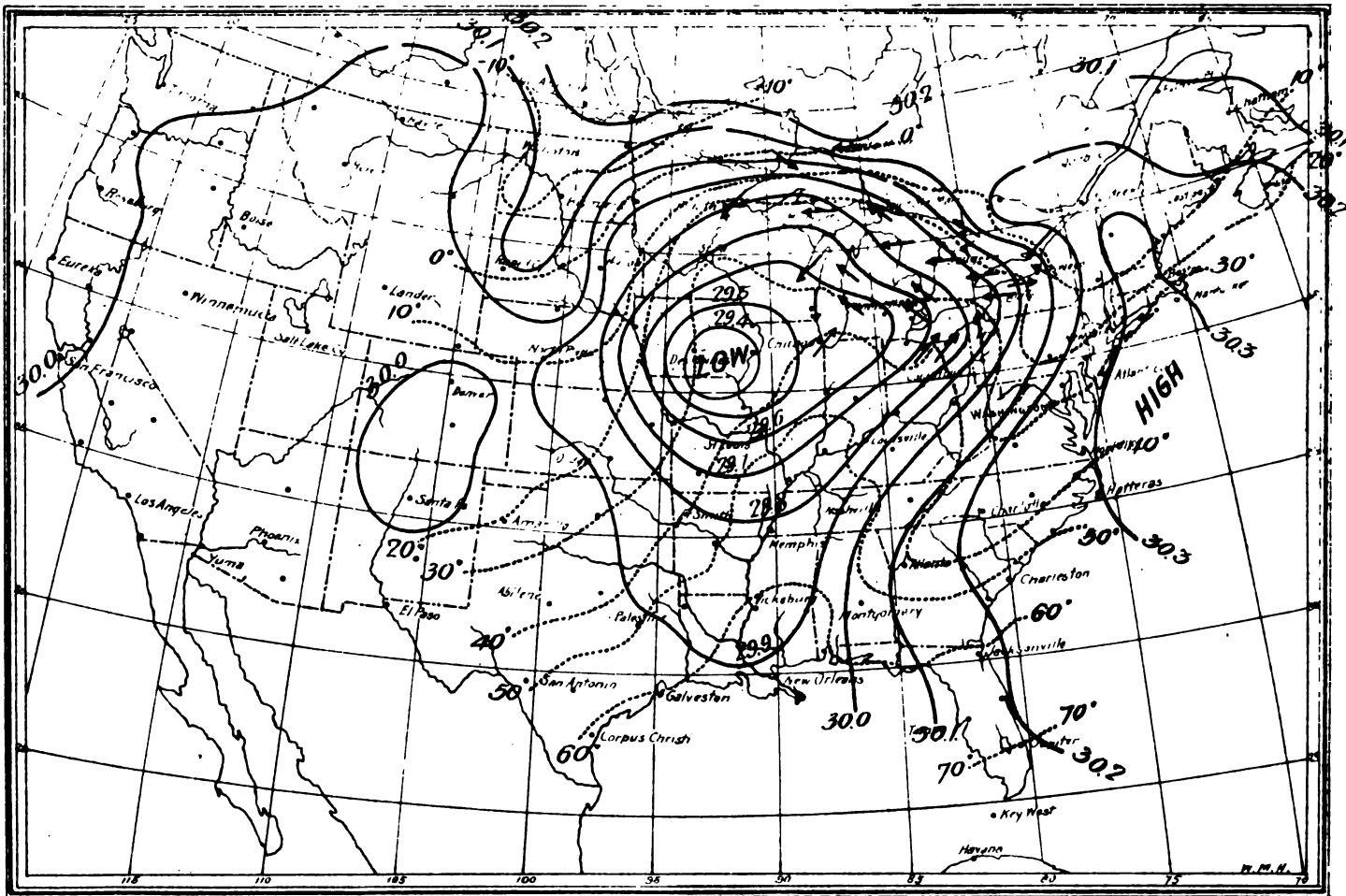


Chart CXX.

February 7, 1892—8 p. m.

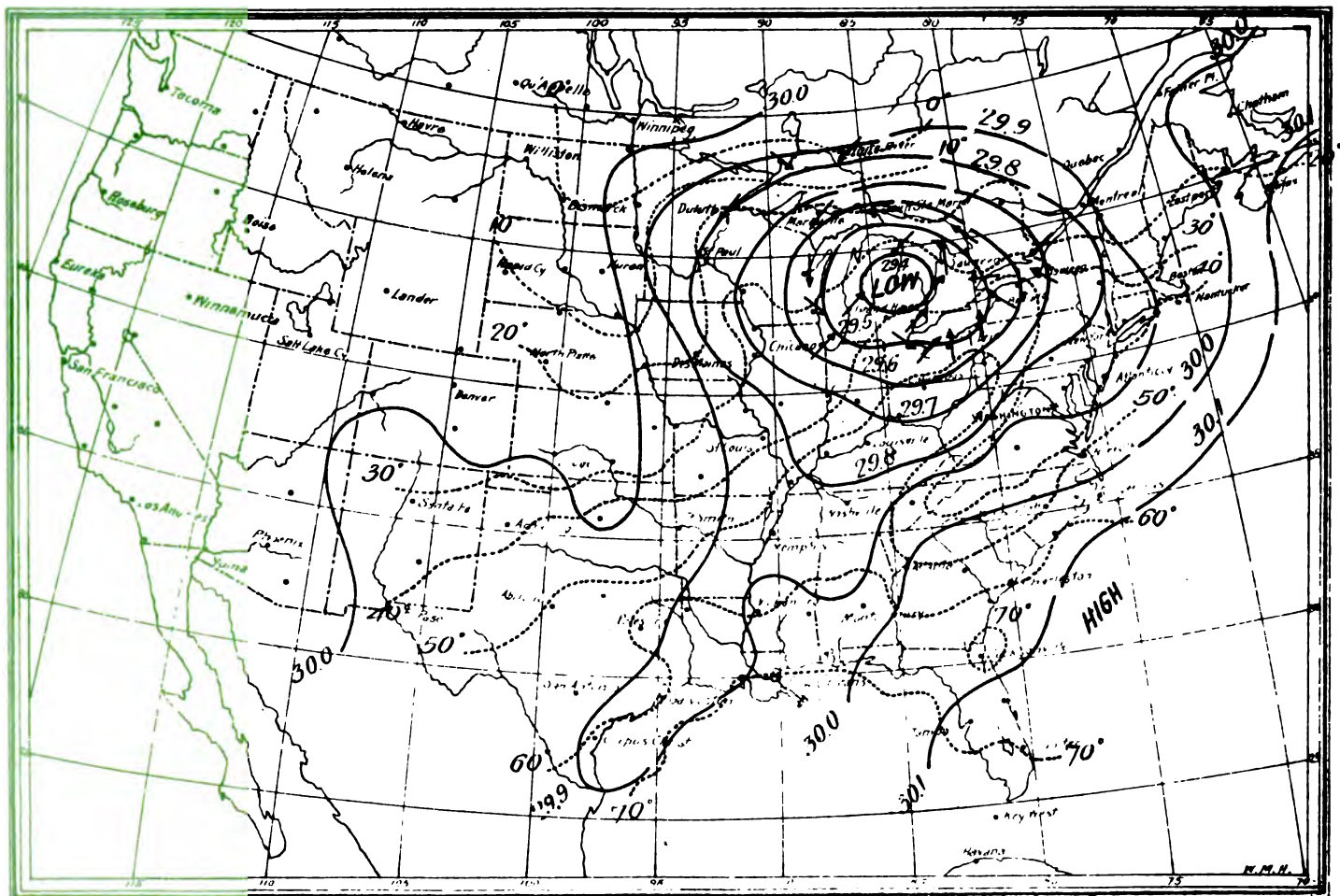


Chart OXXI.

February 1, 1893—8 a. m.

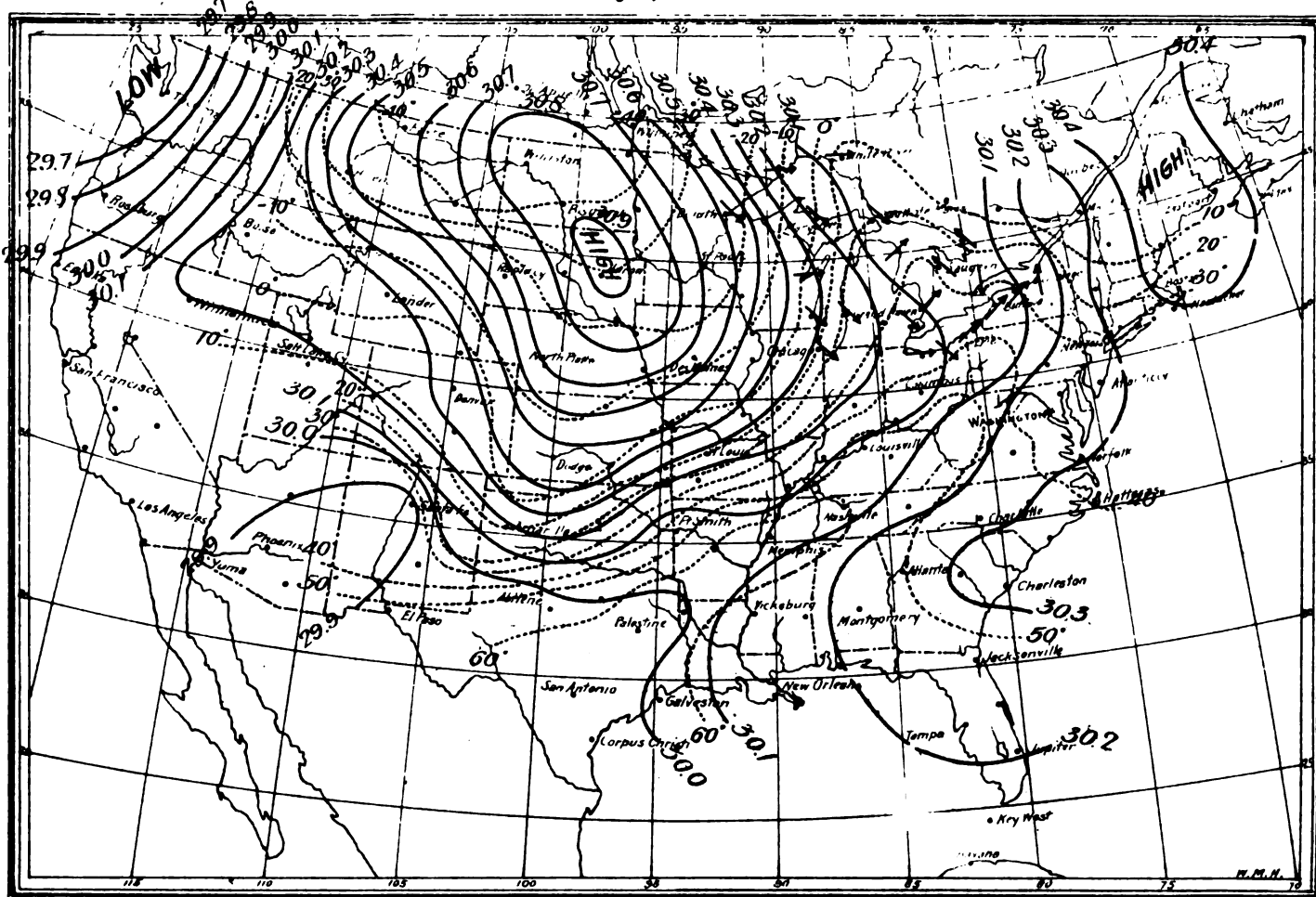


Chart OXXII.

February 1, 1893—8 p. m.

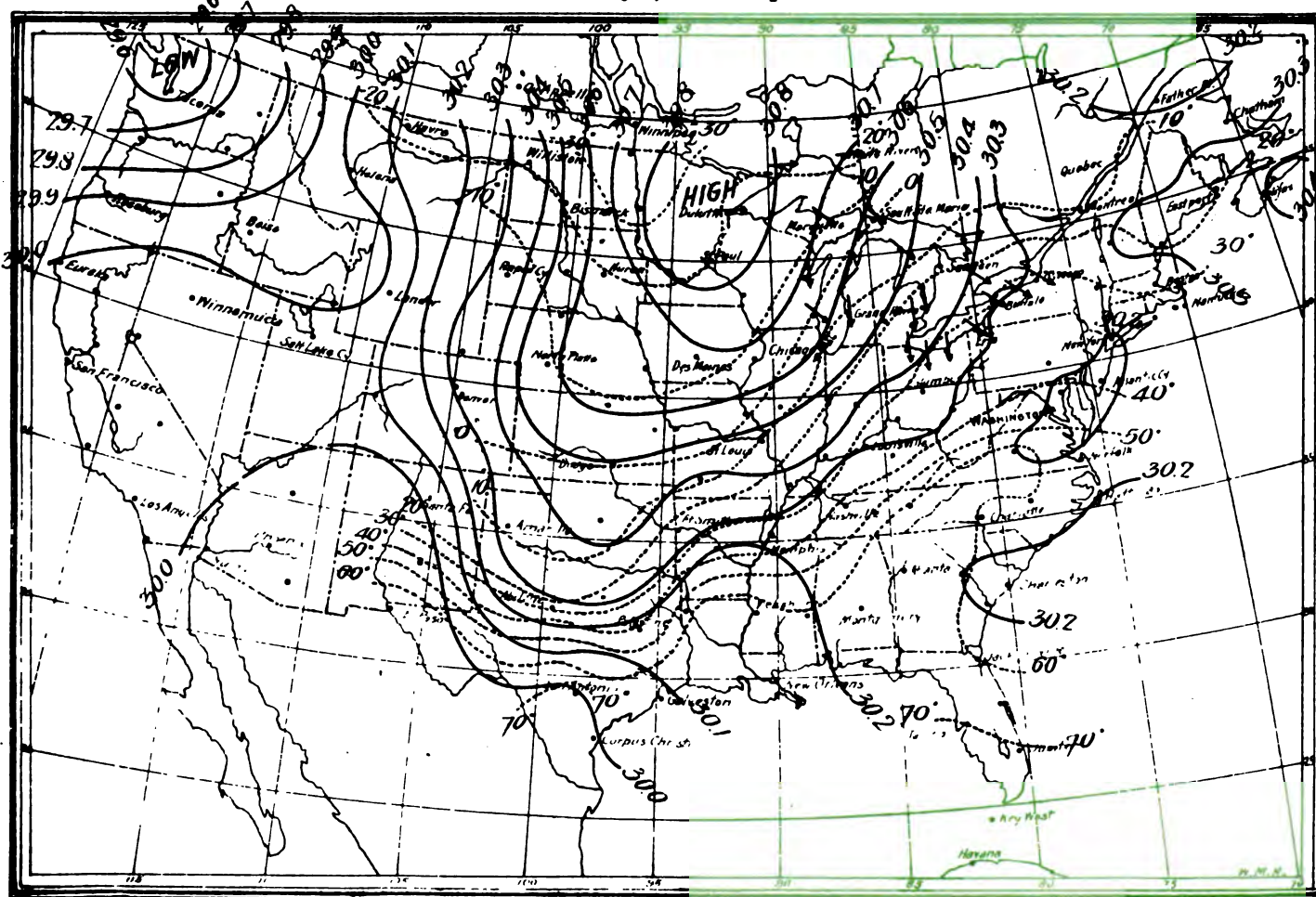


Chart OXXIII.

February 2, 1893—8 a. m.

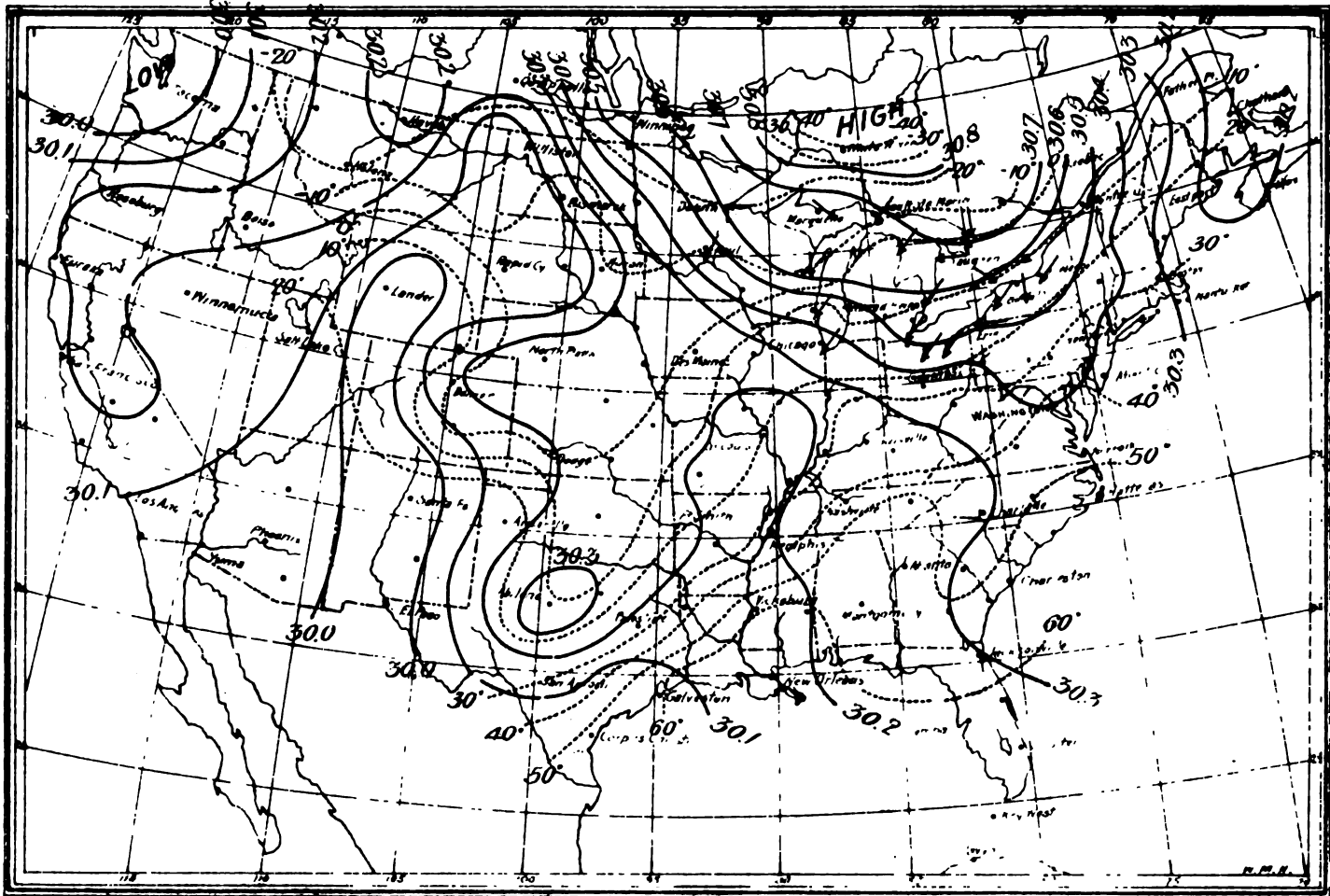


Chart OXXIV.

February 2, 1893—8 p. m.

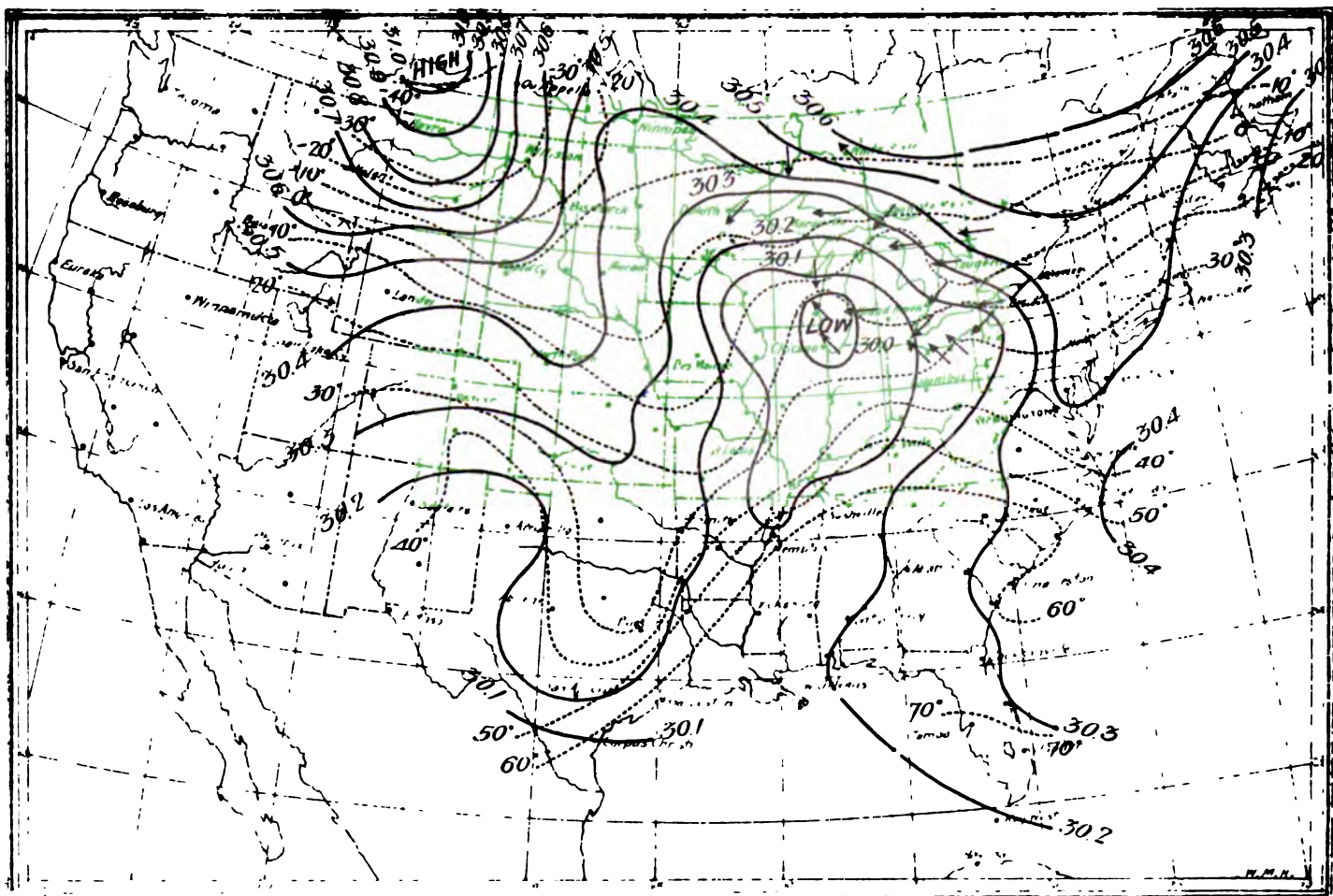


Chart OXXV.

February 18, 1893—8 a. m.

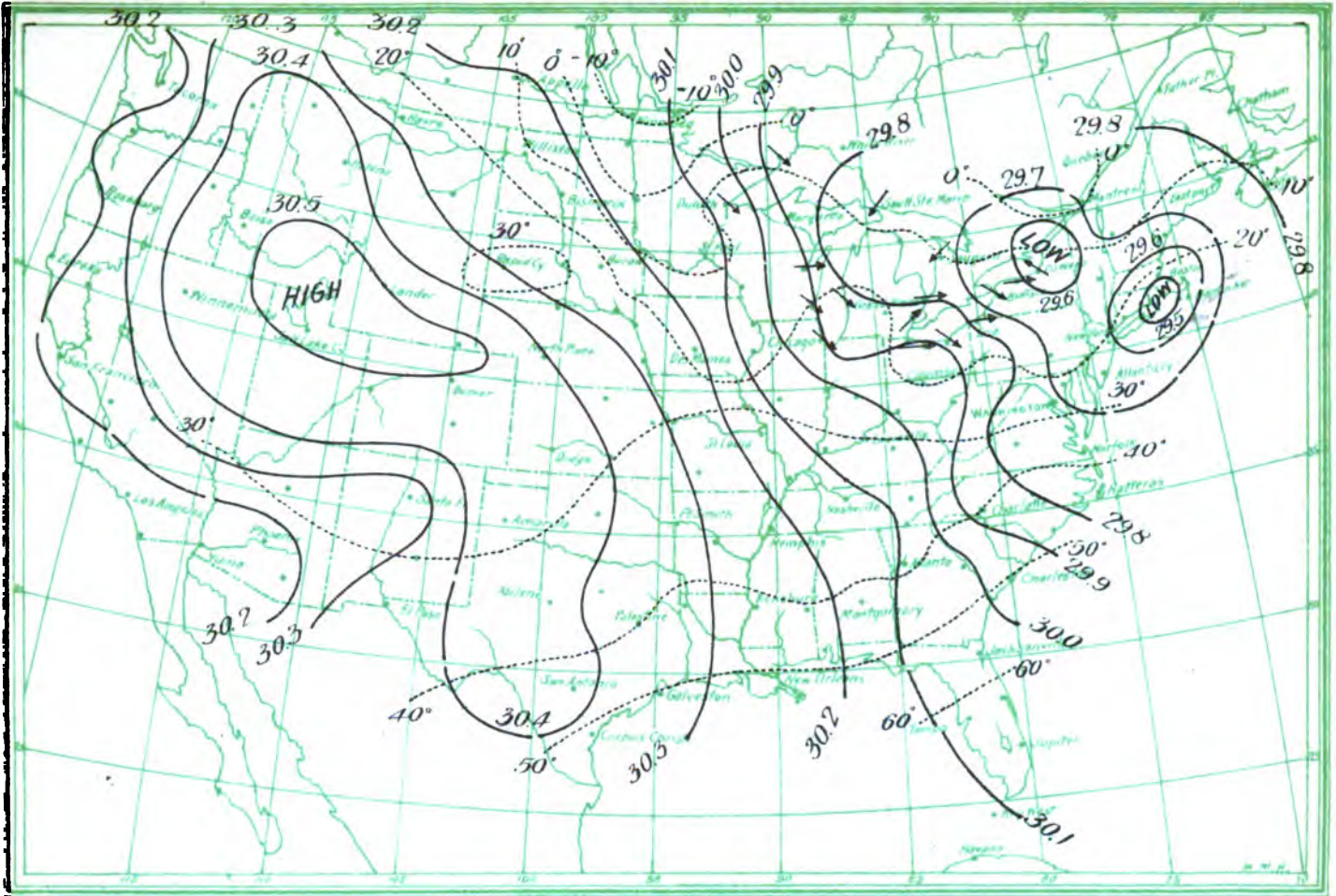
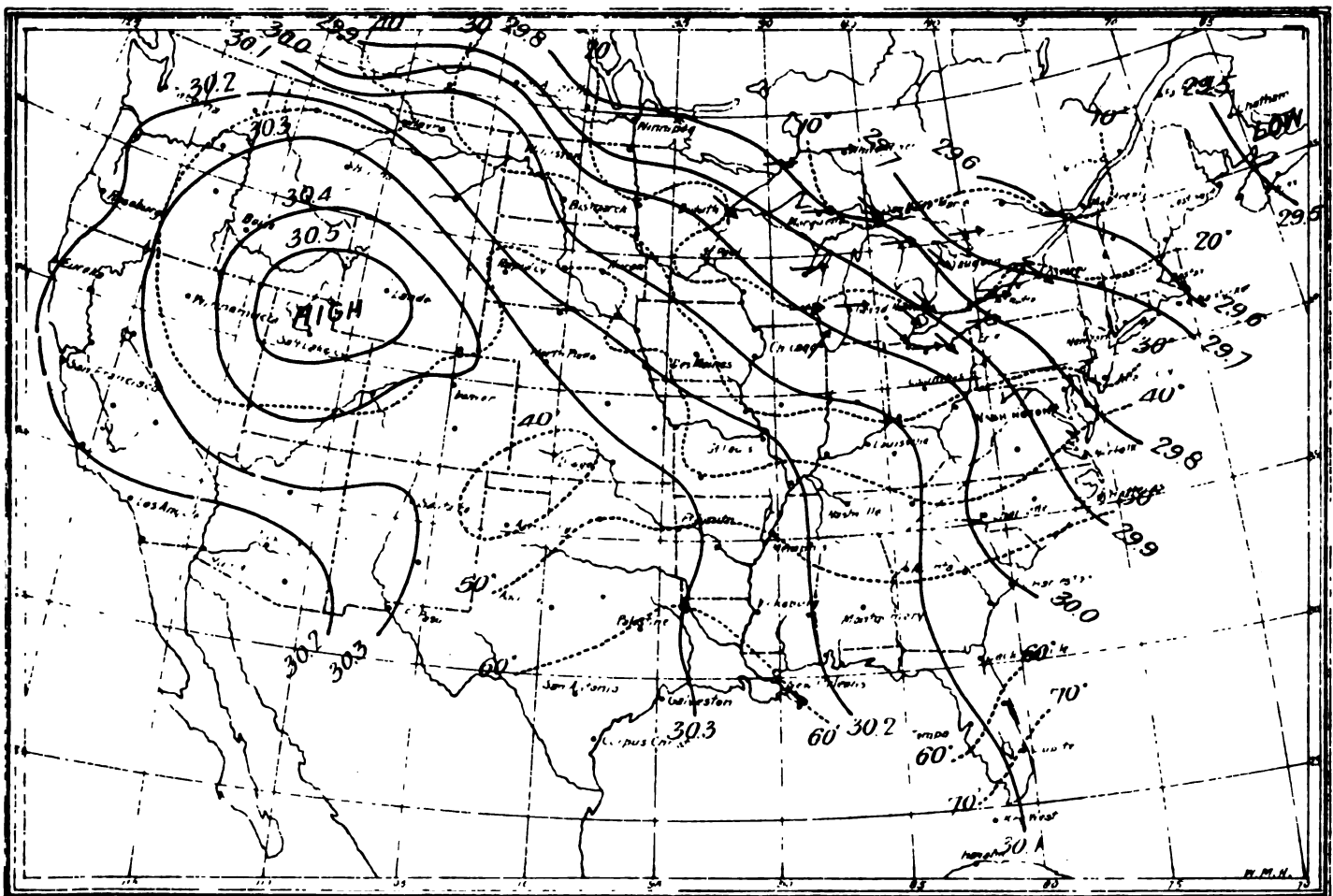


Chart OXXVI.

February 18, 1893—8 p. m.



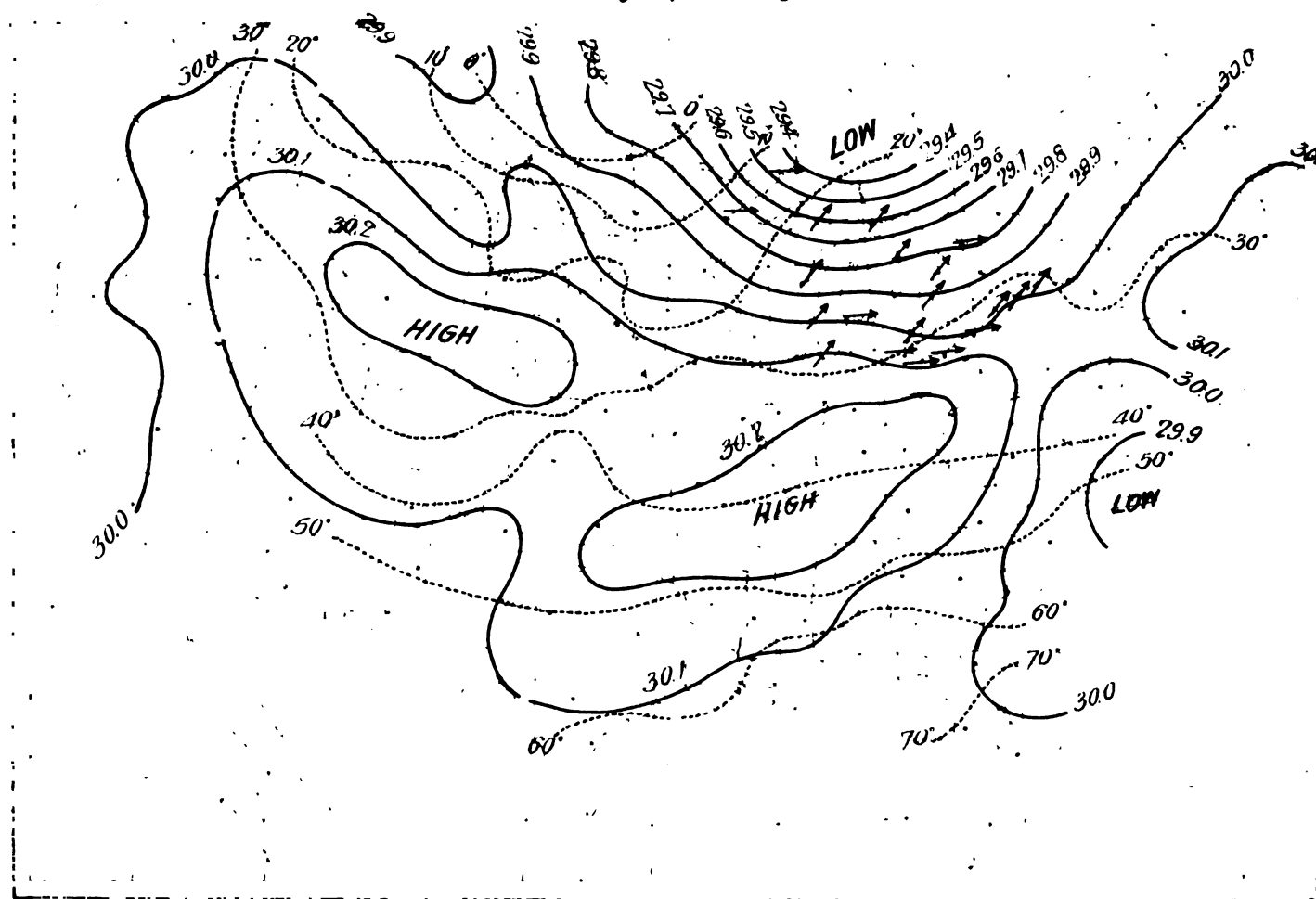
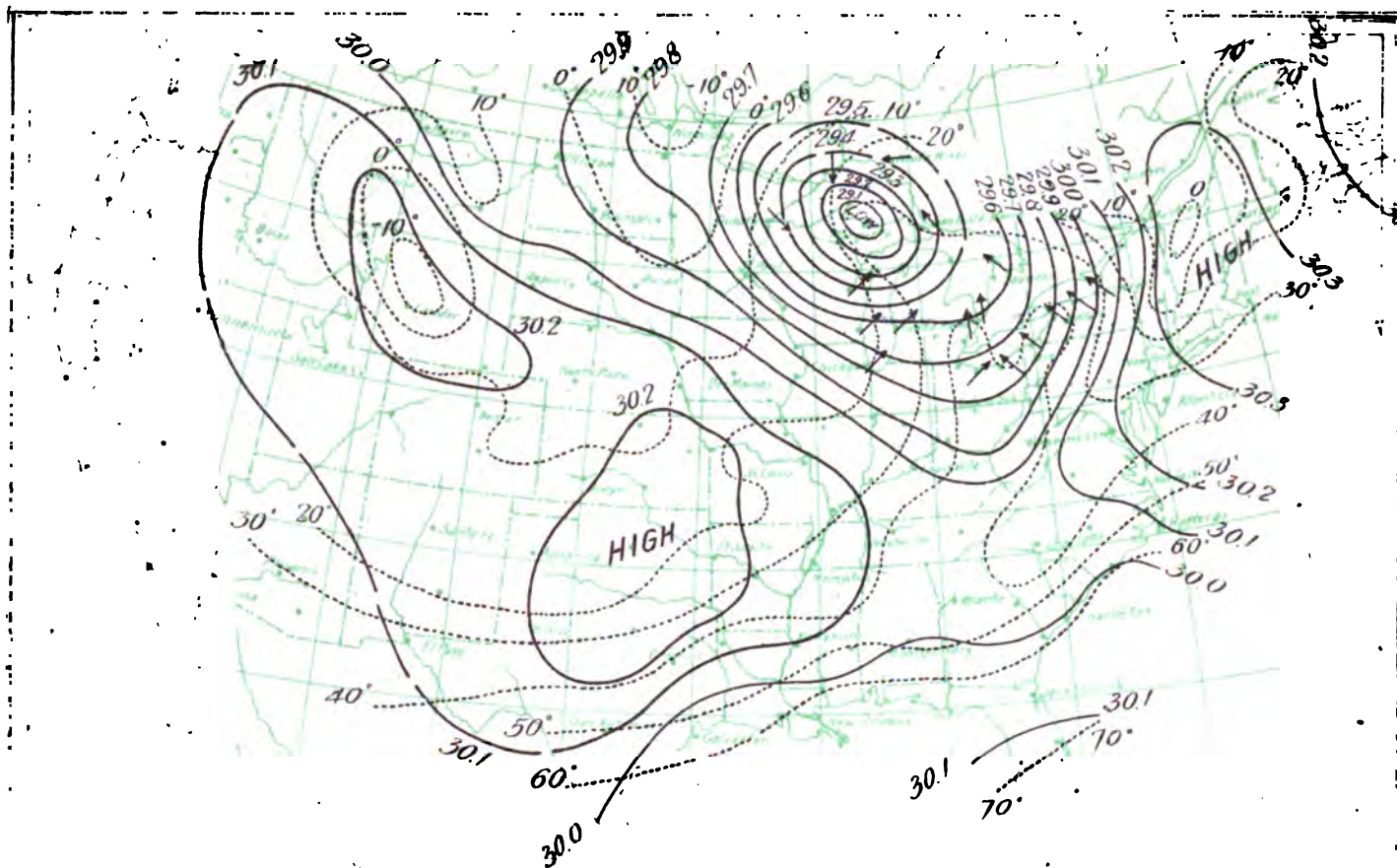


Chart OXXXIII.

February 18, 1898—8 a. m.

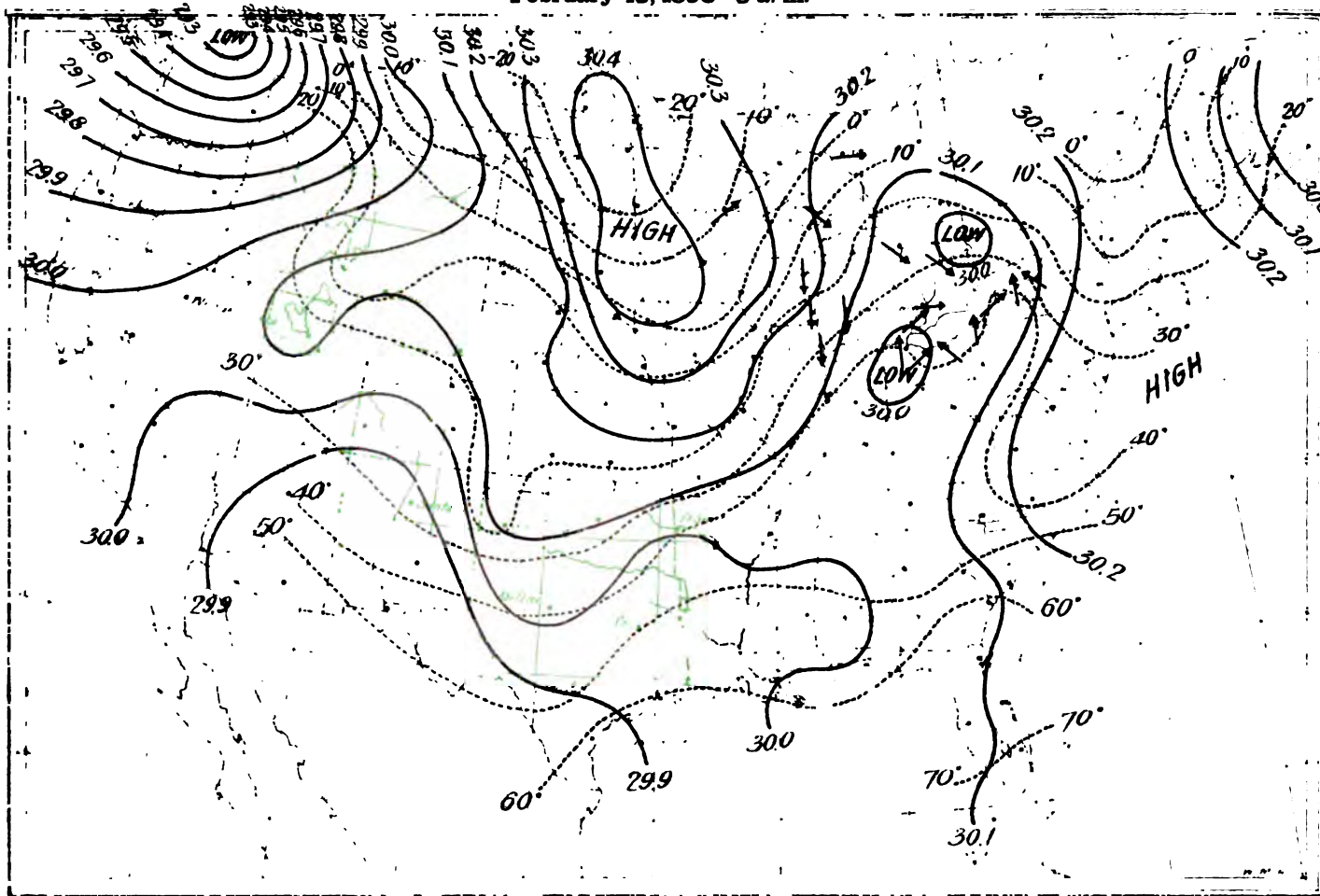


Chart OXXXIV.

February 18, 1898—8 p. m.

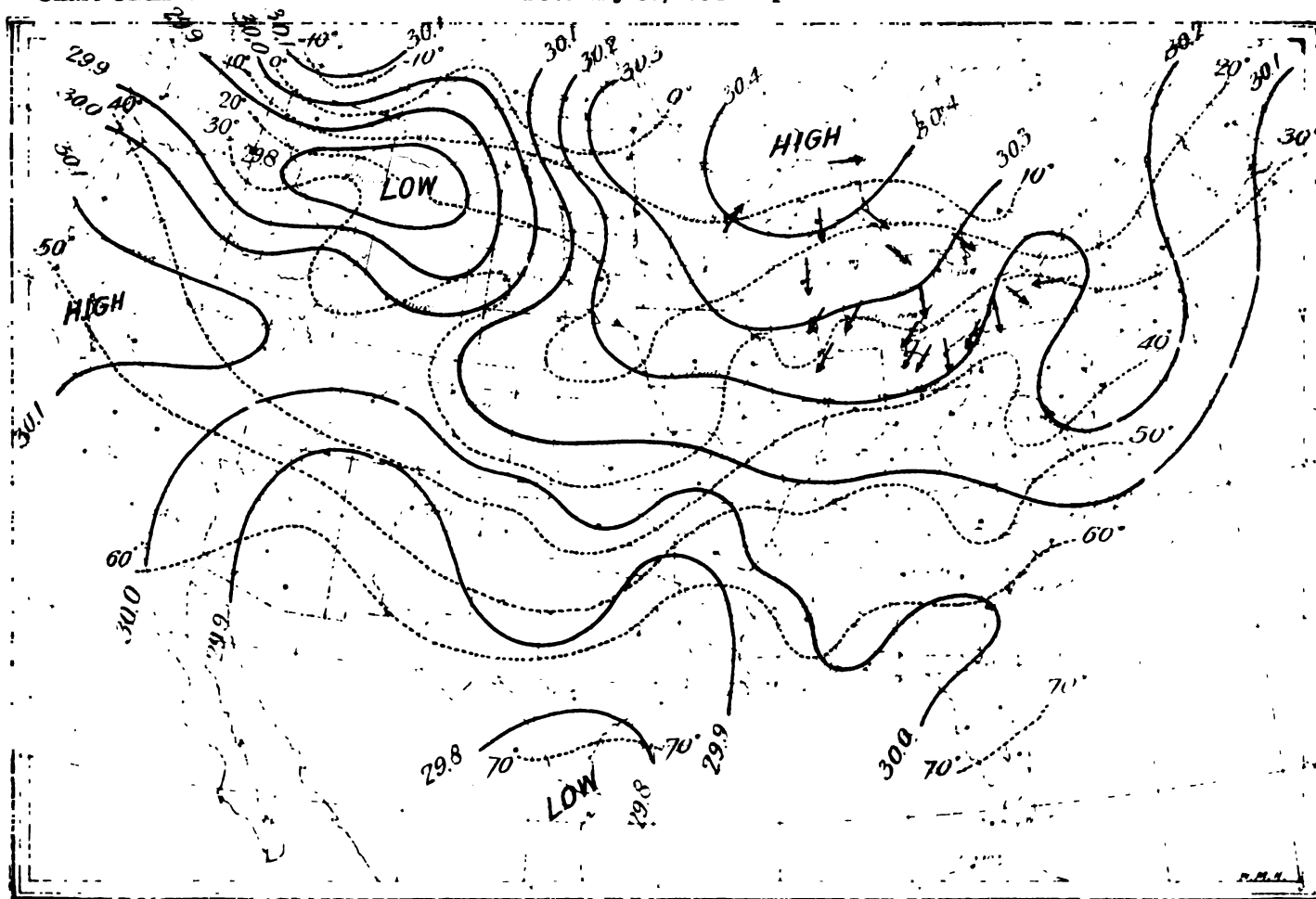


Chart OXXXV.

February 19, 1898—8 a. m.

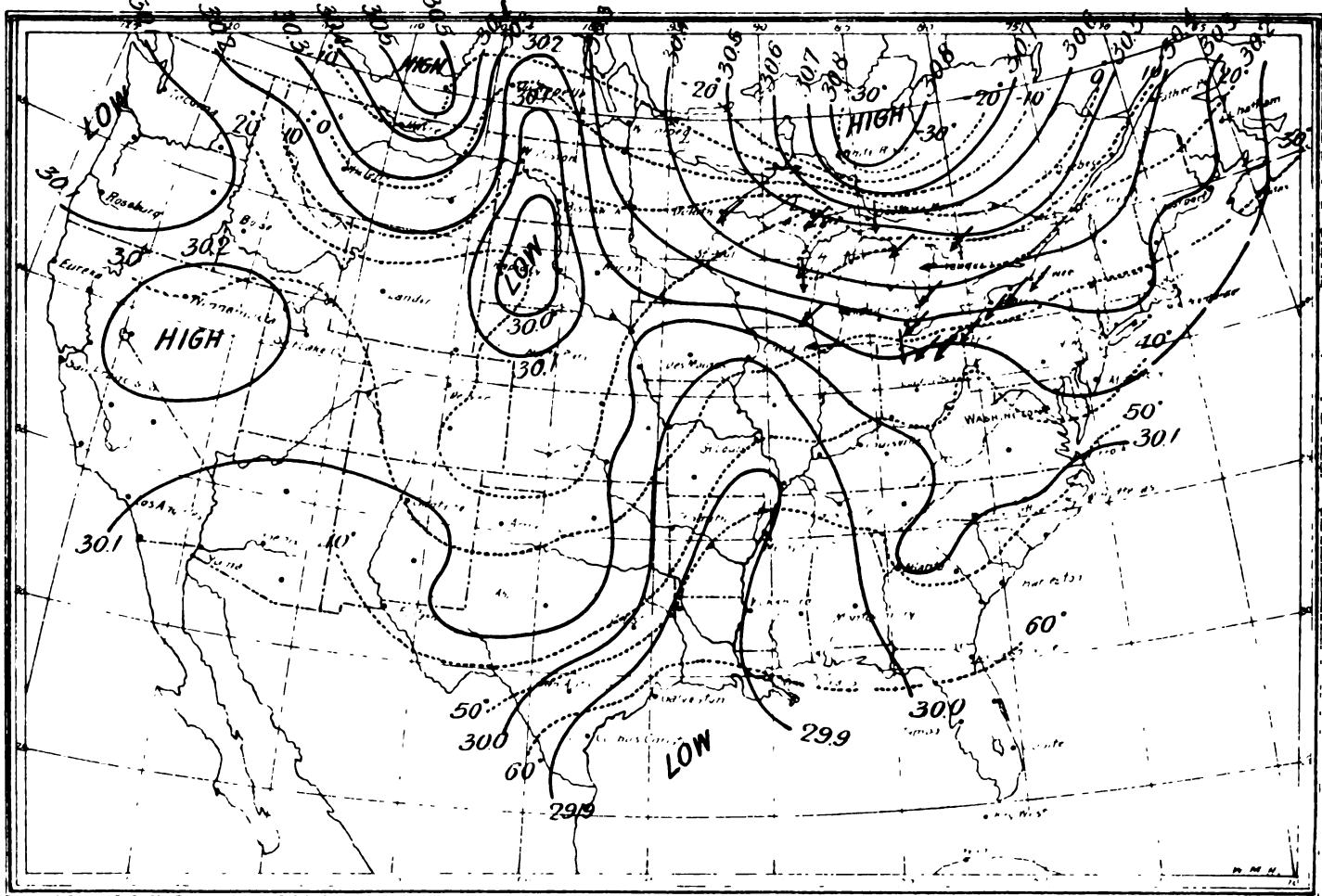


Chart OXXXVI.

February 19, 1898—8 p. m.

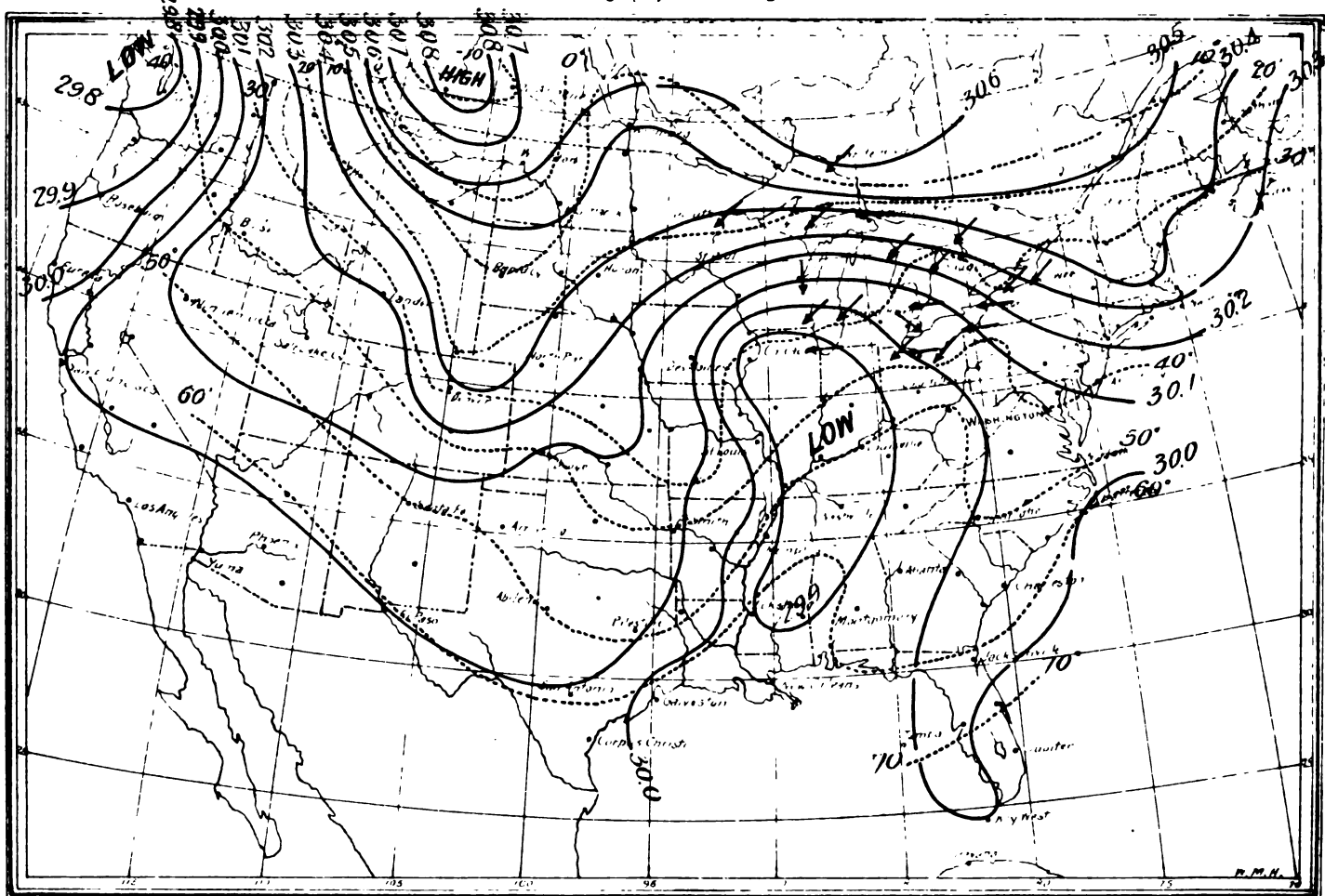


Chart OXXXVII.

March 15, 1876—7:35 a. m.

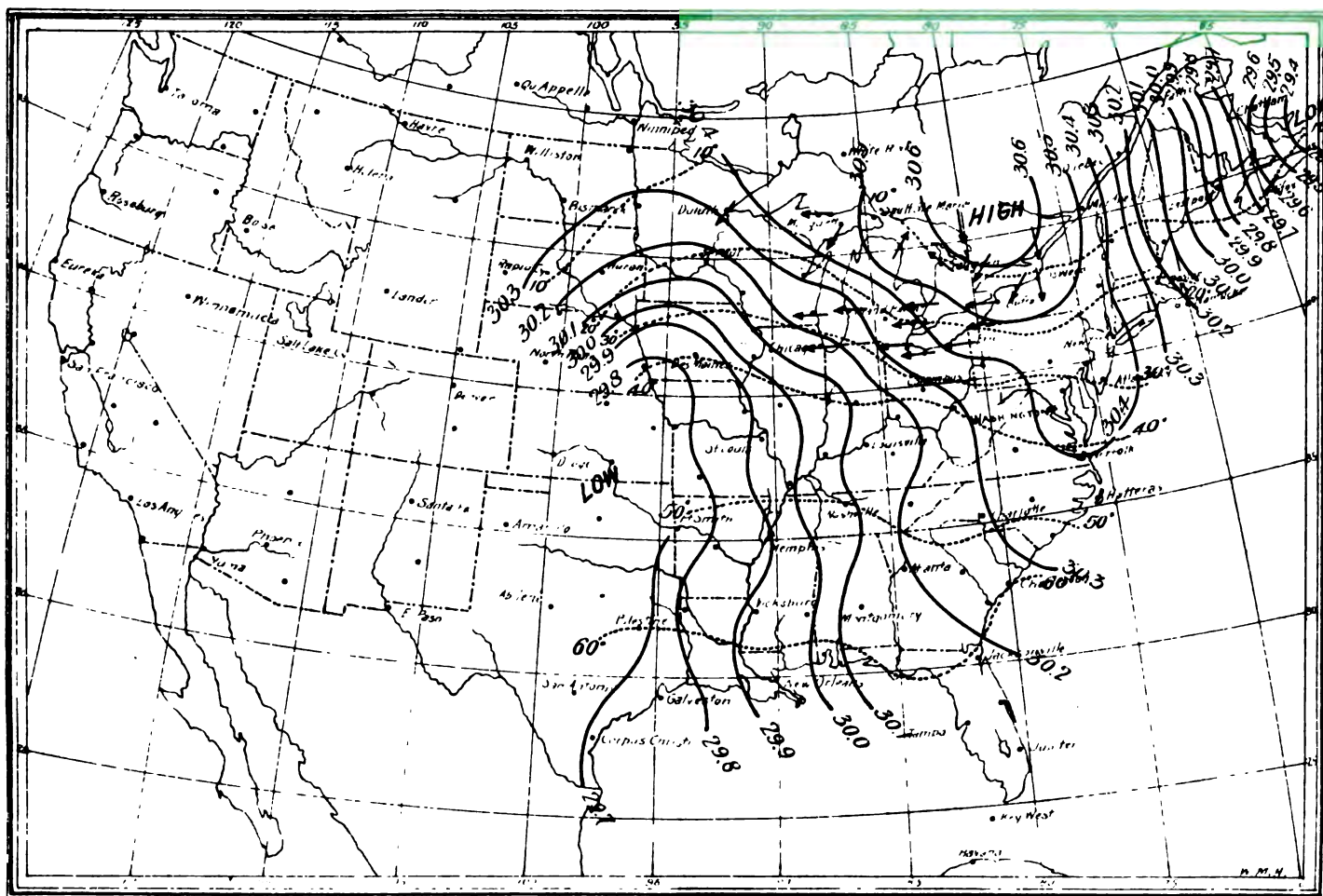


Chart OXXXVIII.

March 15, 1876—4:35 p. m.

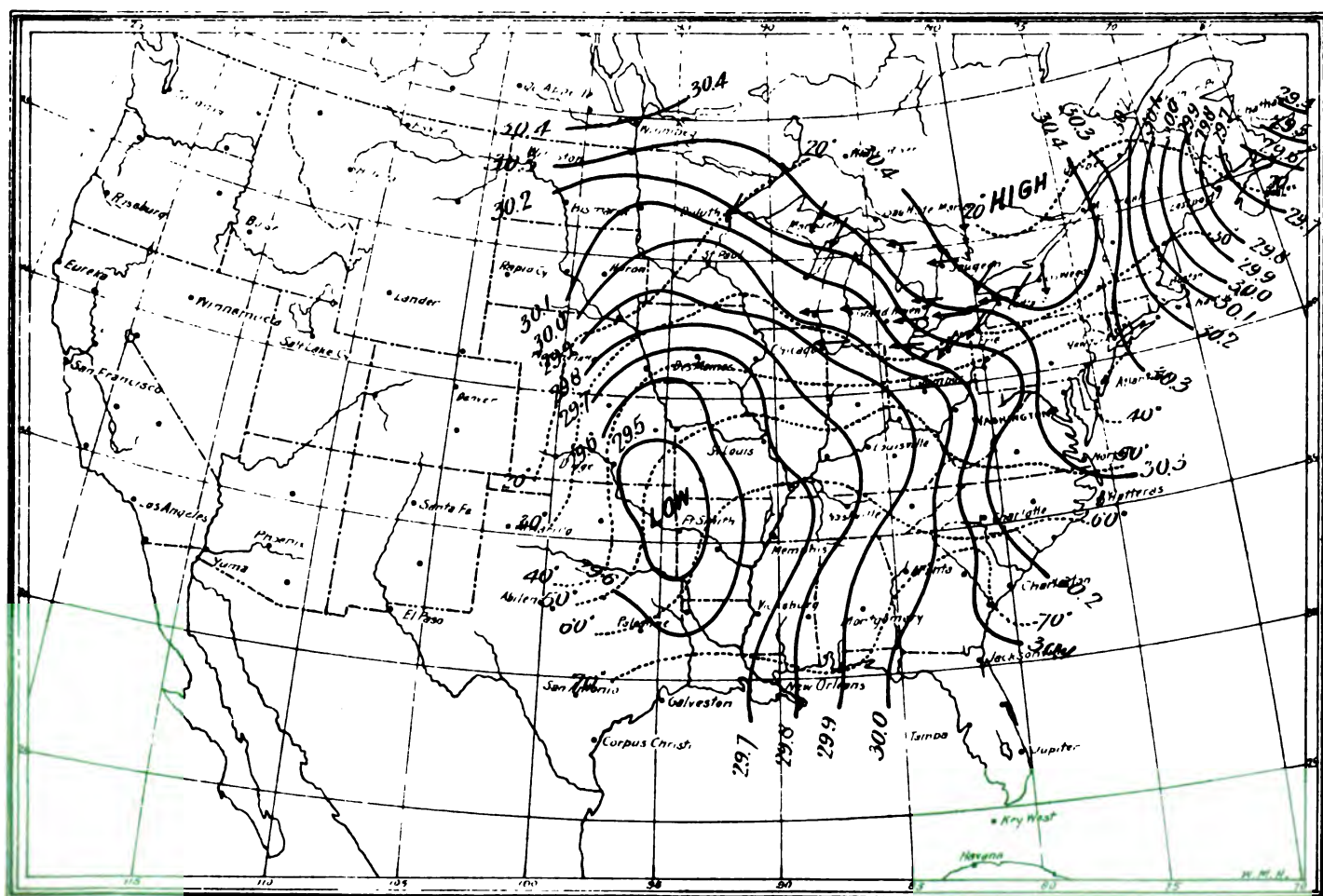


Chart OXXXIX.

March 16, 1876—7:35 a. m.

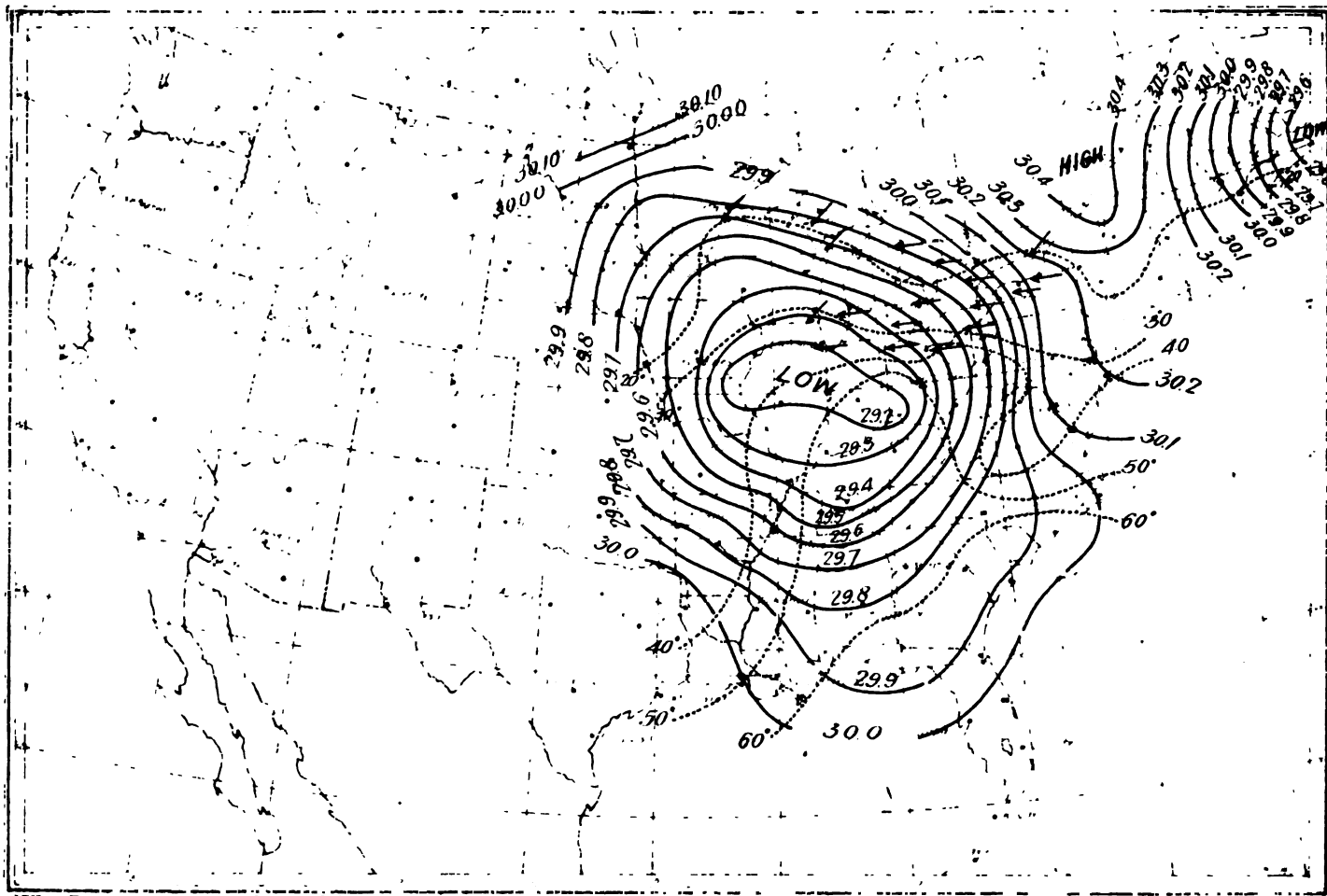


Chart OXL.

March 16, 1876—4:35 p. m.

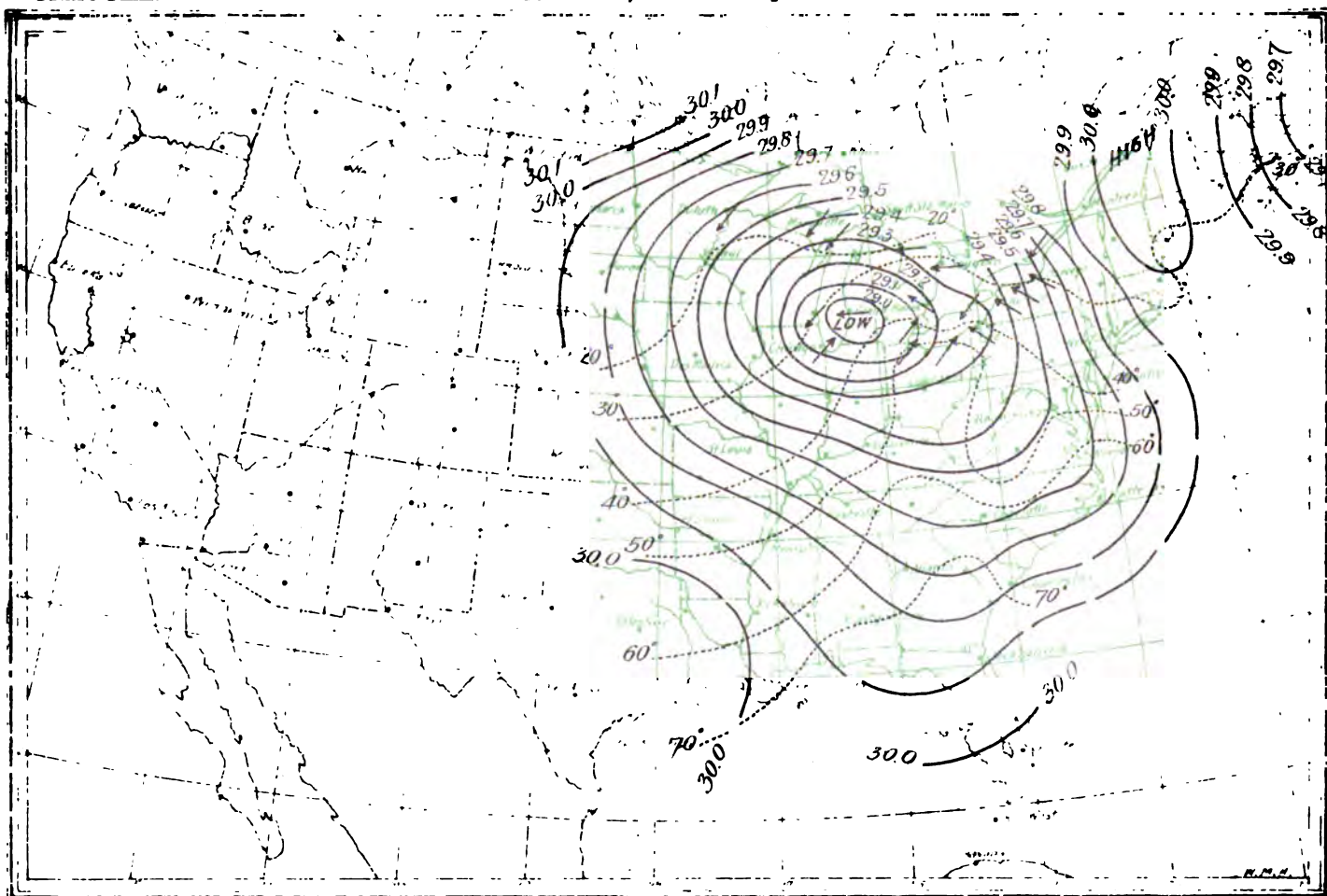


Chart OXLI.

March 24, 1876—7:35 a. m.

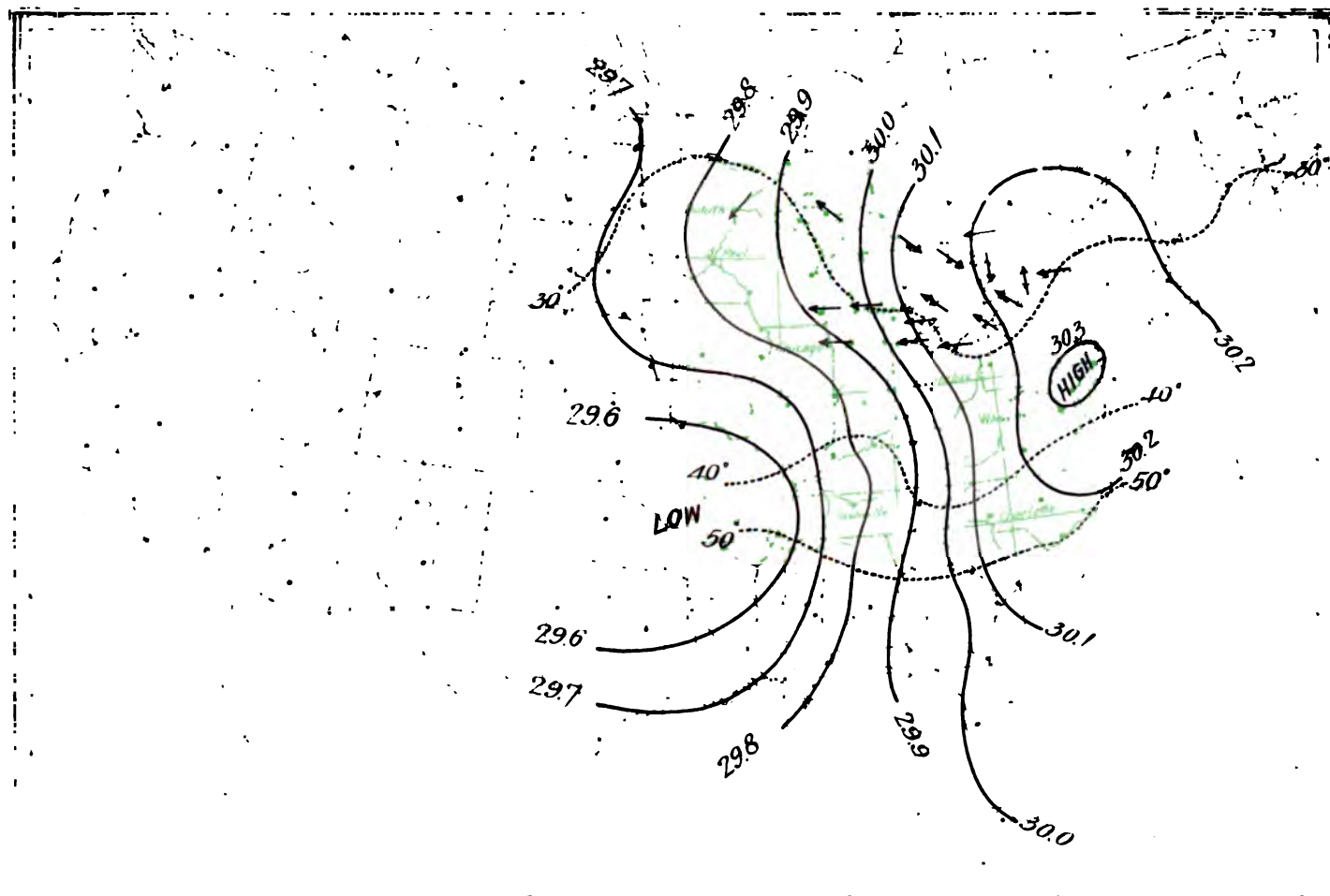


Chart OXLII.

March 24, 1876—4:35 p. m.

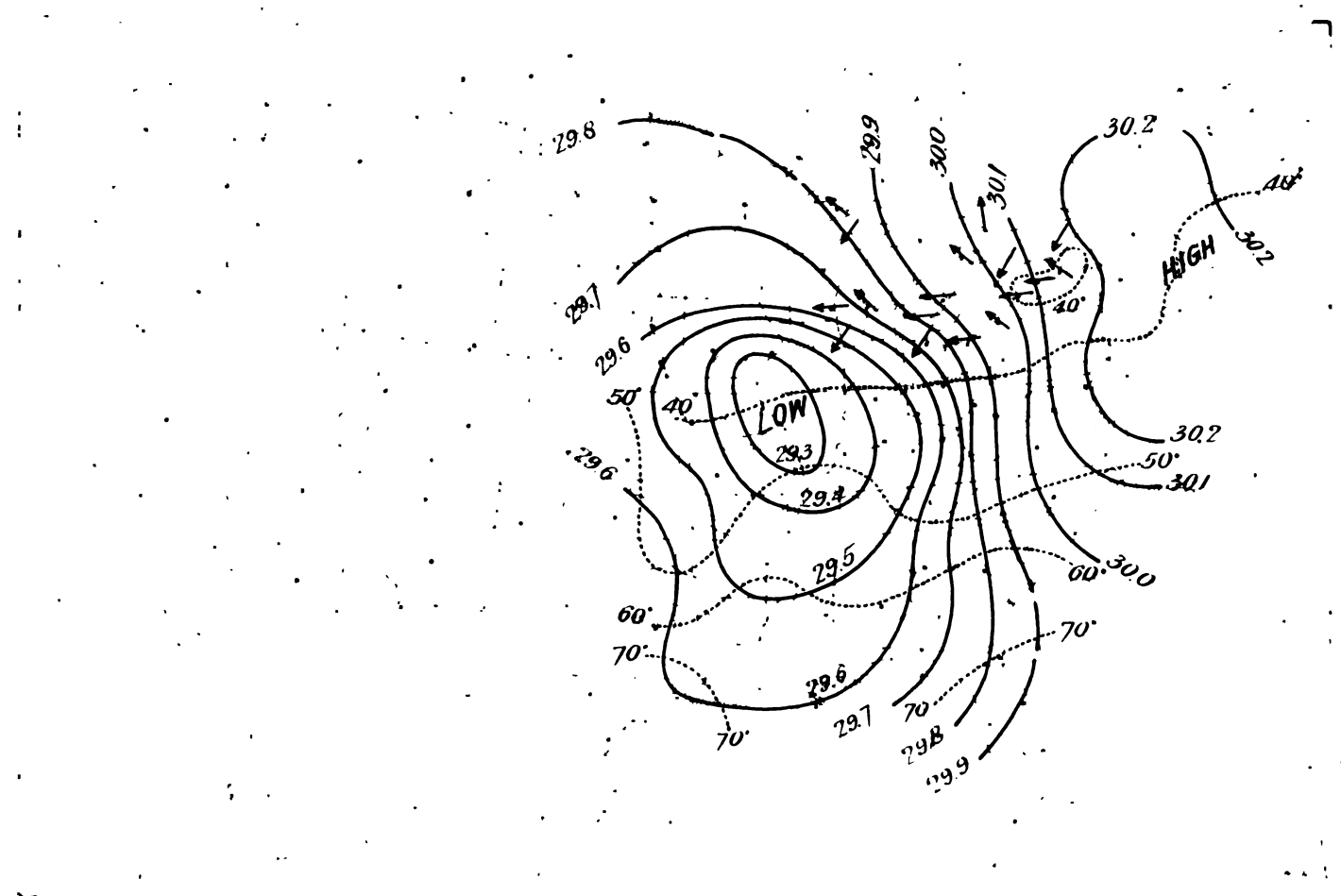


Chart OXLIII.

March 26, 1876—7:35 a. m.

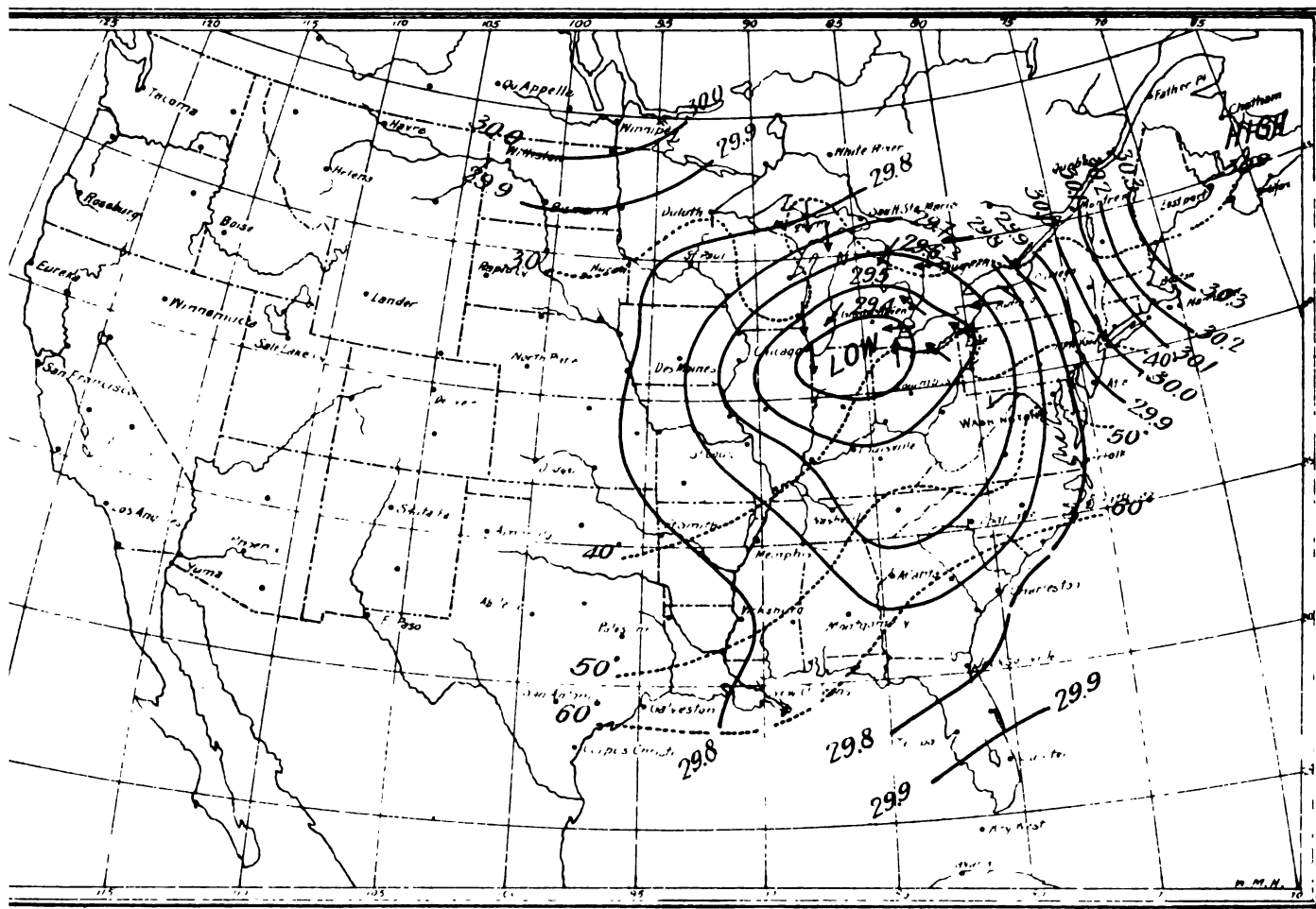


Chart OXLIV.

March 26, 1876—4:35 p. m.

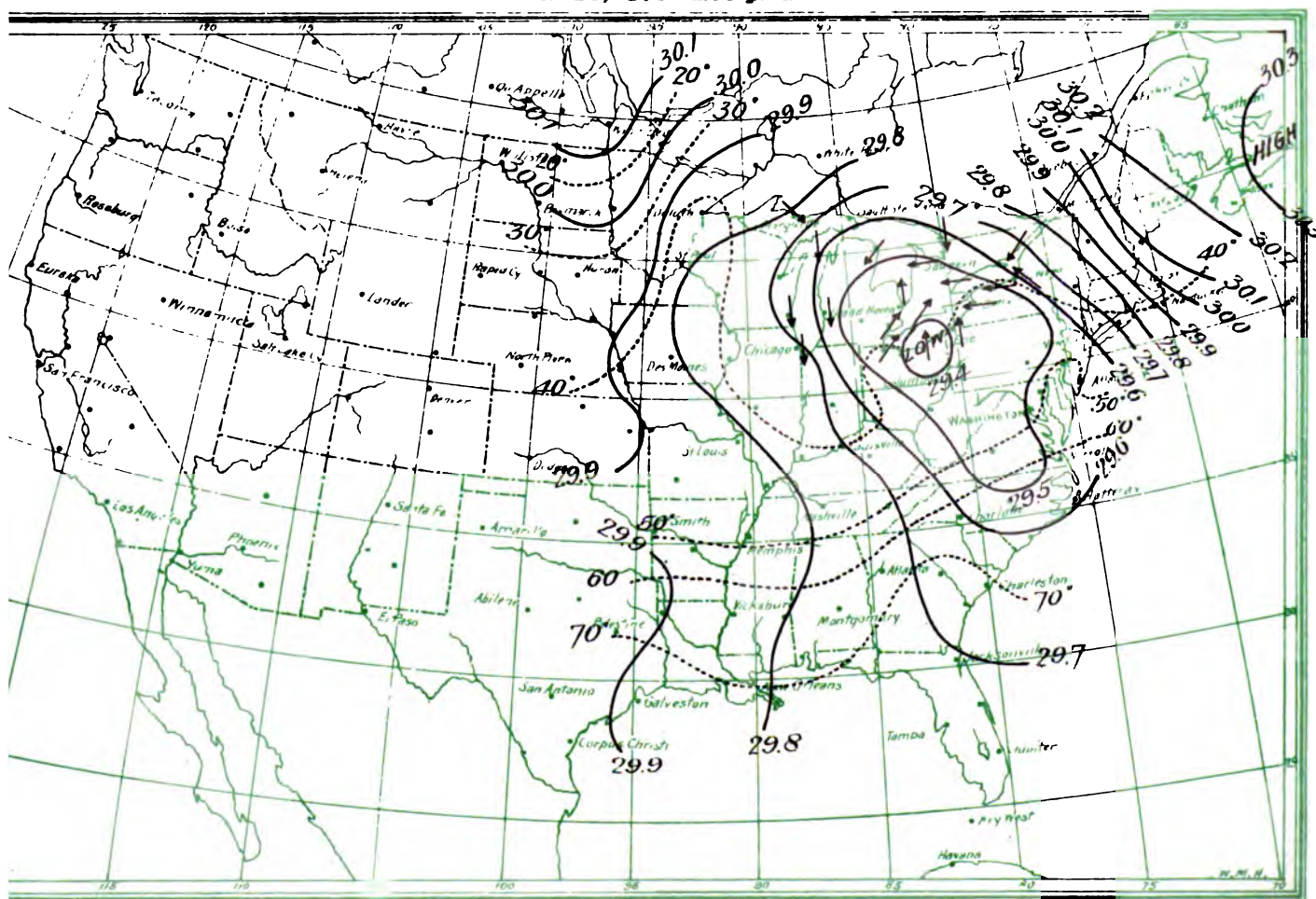


Chart OXLIV.

March 1, 1877—7:35 a. m.

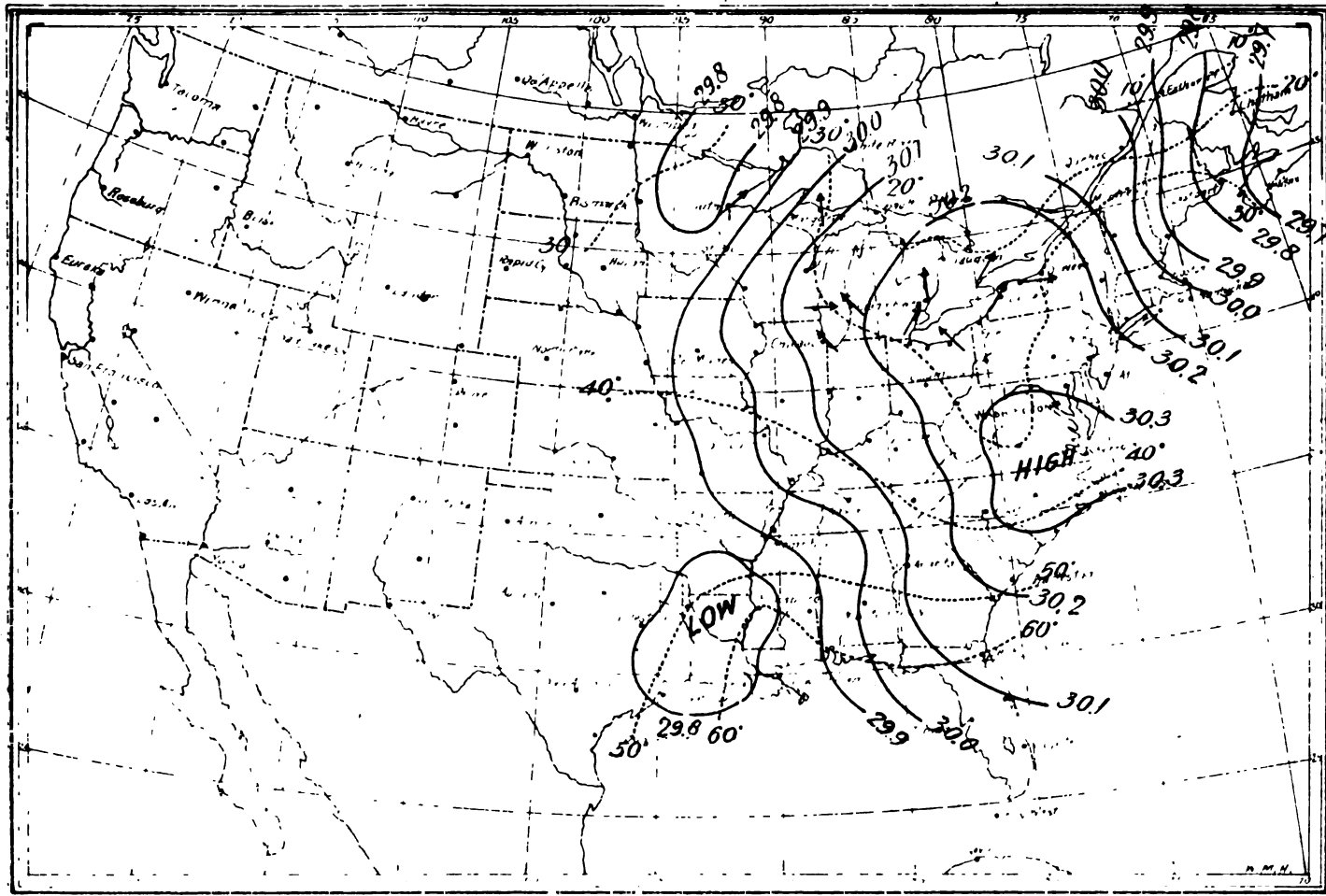


Chart OXLVI.

March 1, 1877—4:35 p. m.

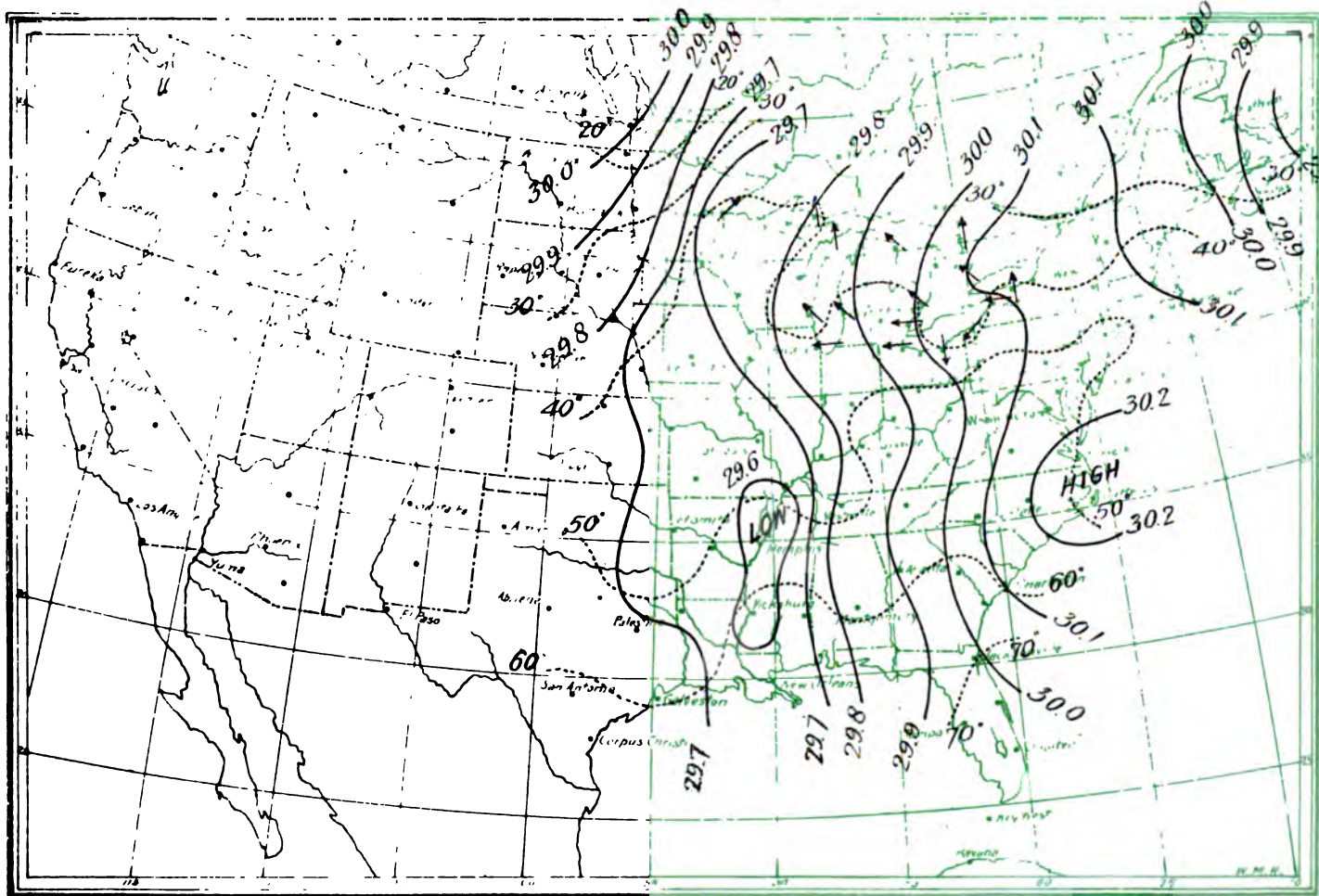


Chart OXLVII.

March 2, 1877—7:35 a. m.

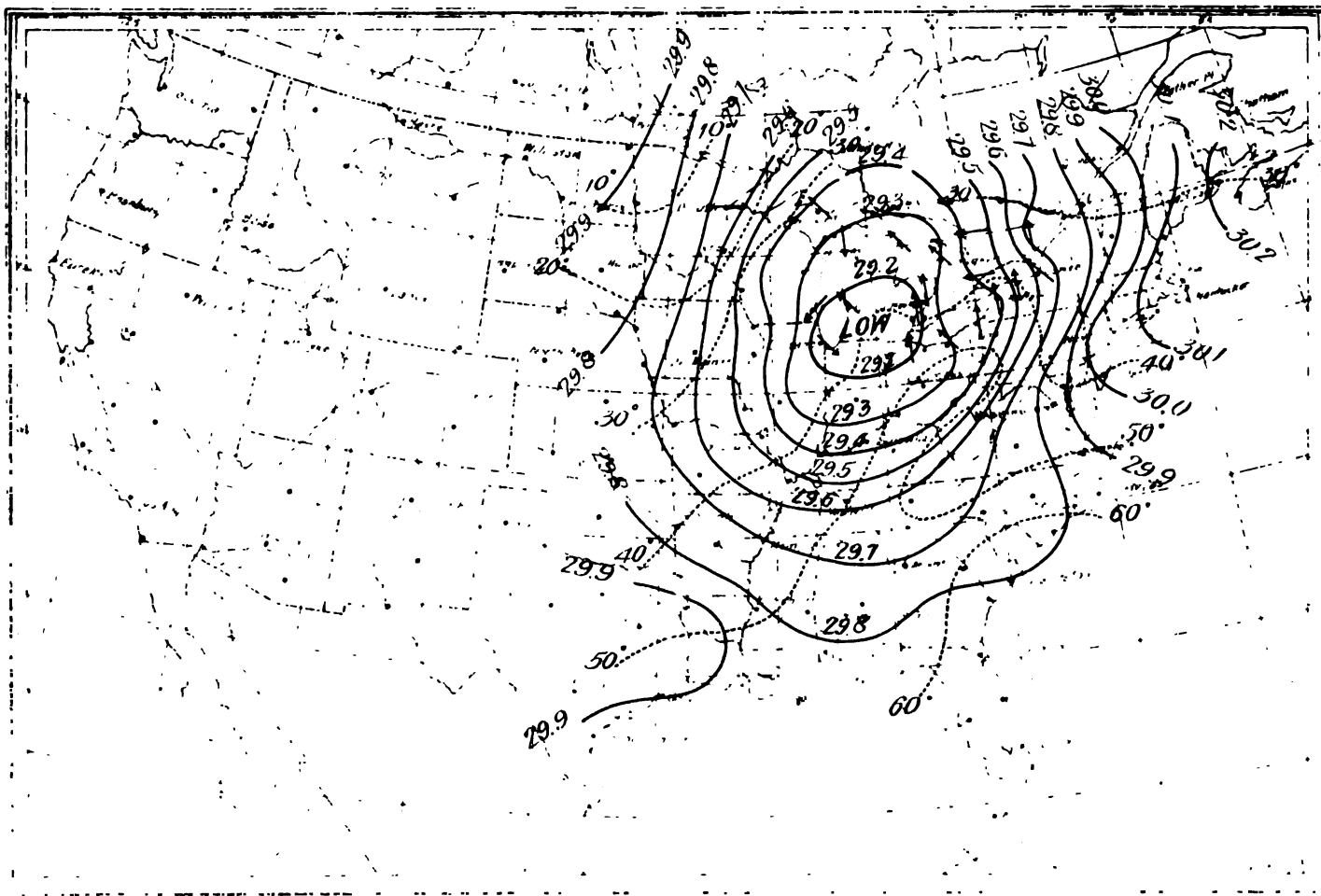


Chart OXLVIII.

March 2, 1877—4:35 p. m.

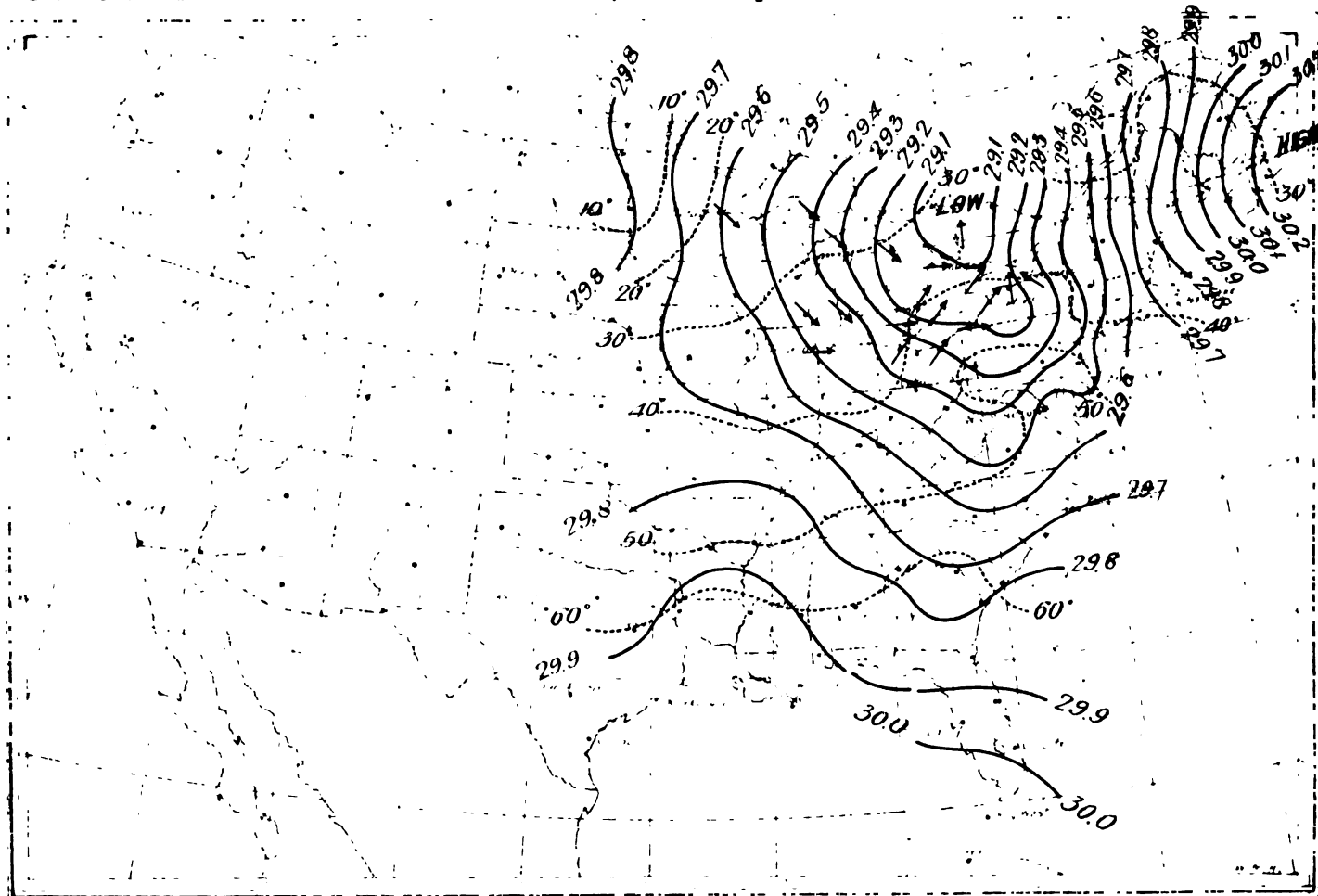


Chart OXLIX.

March 2, 1878—7:35 a. m.

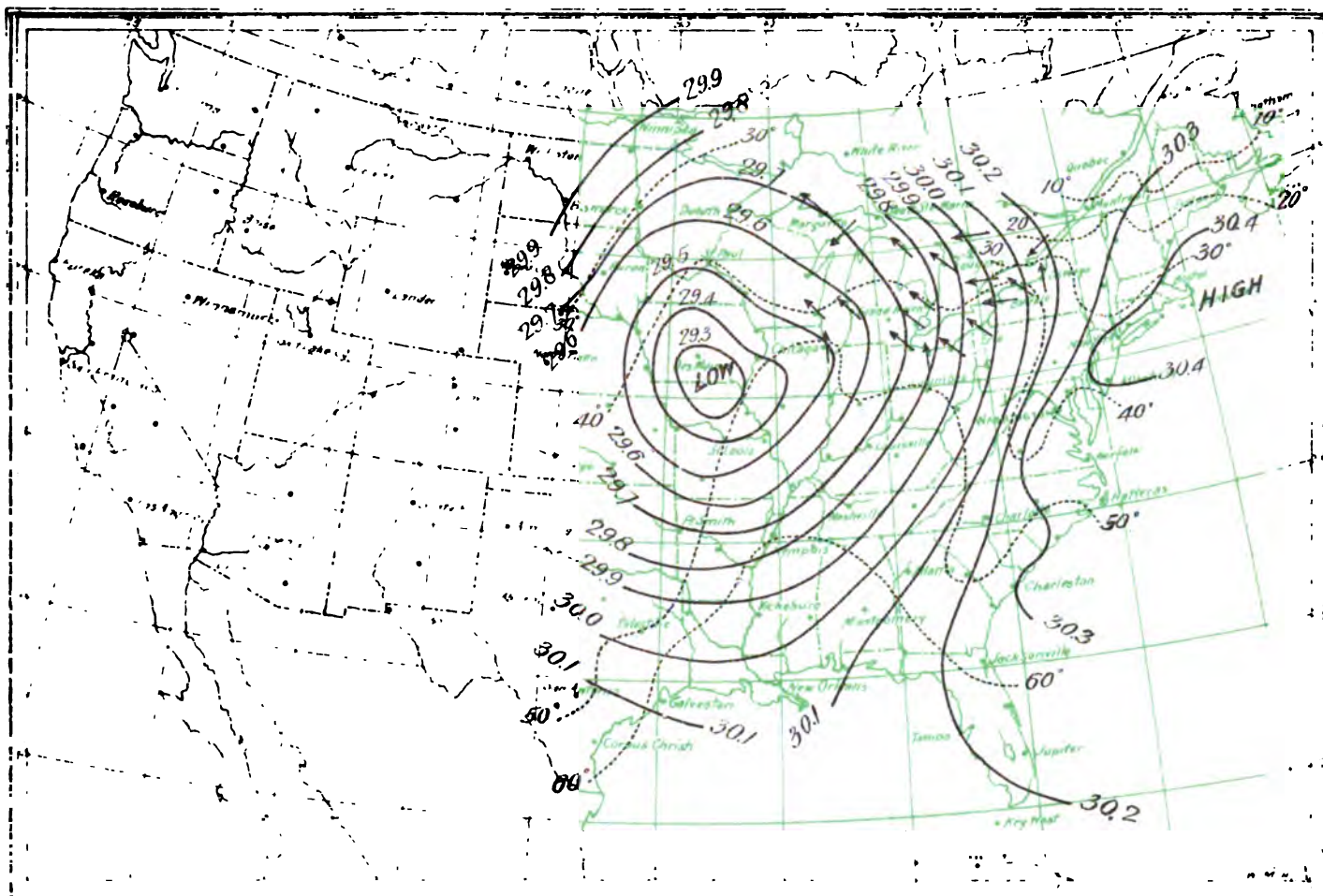


Chart OL.

March 2, 1878—4:35 p. m.

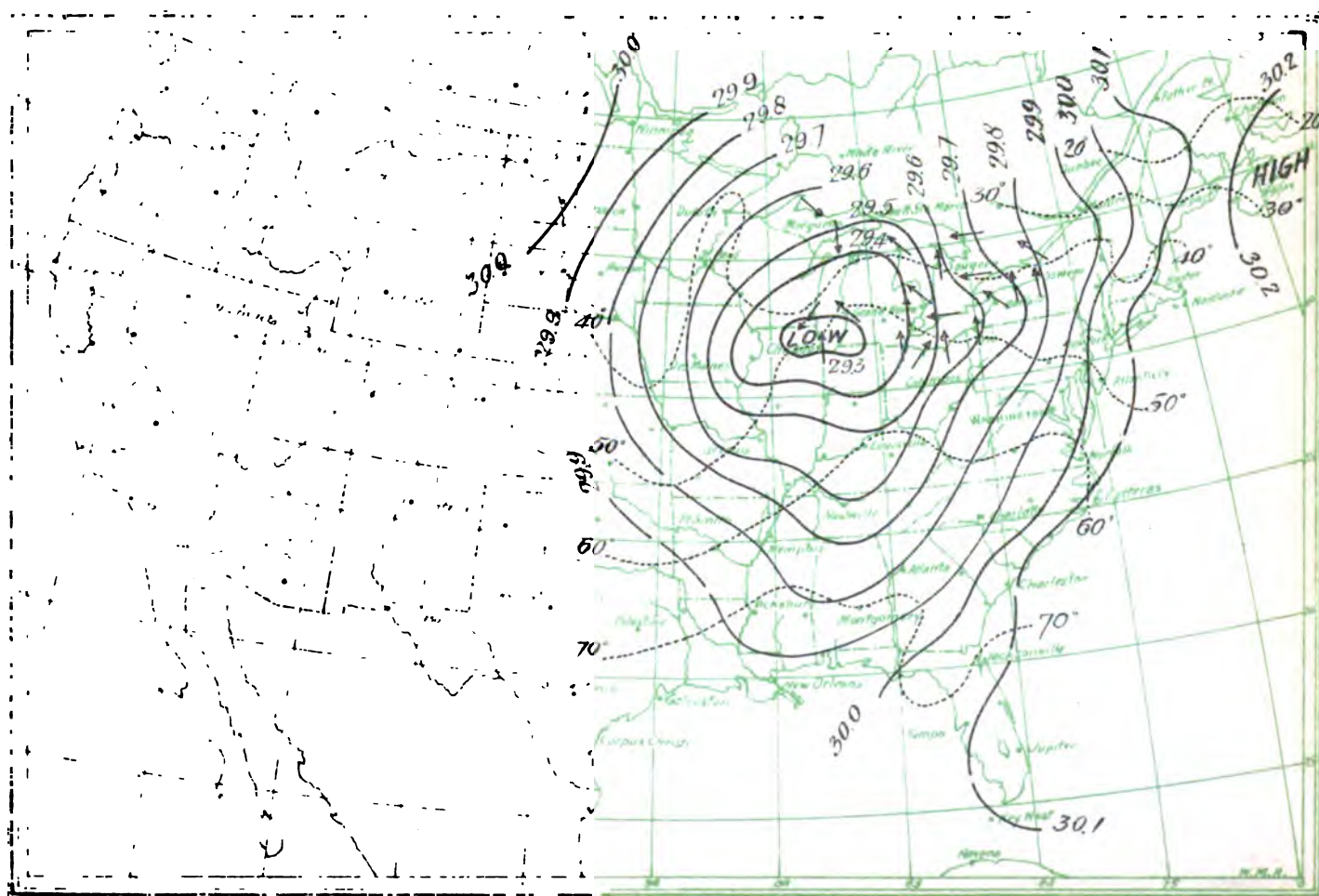


Chart OLIII.

March 4, 1880—7 a. m.

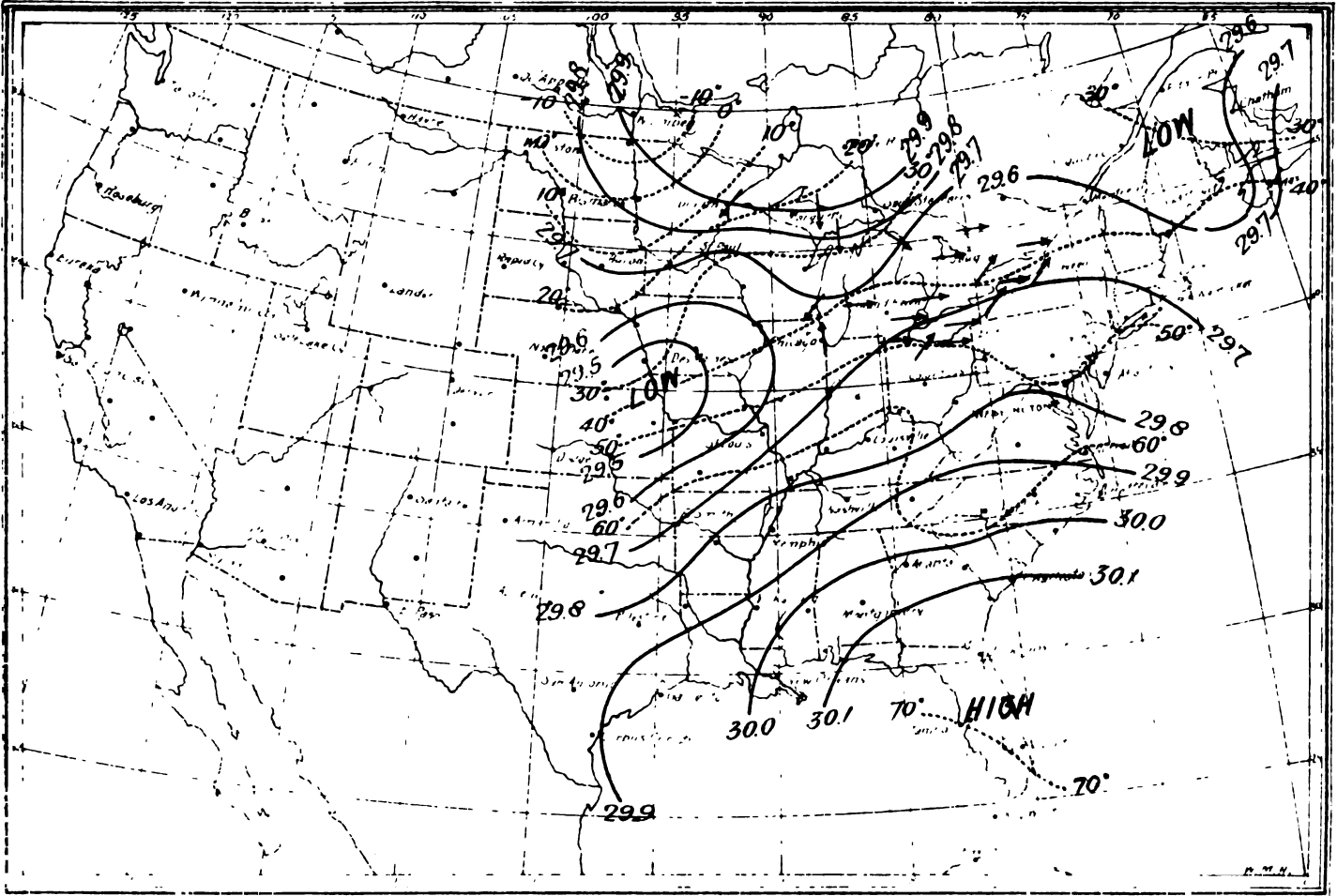


Chart OLIV.

March 4, 1880—3 p. m.

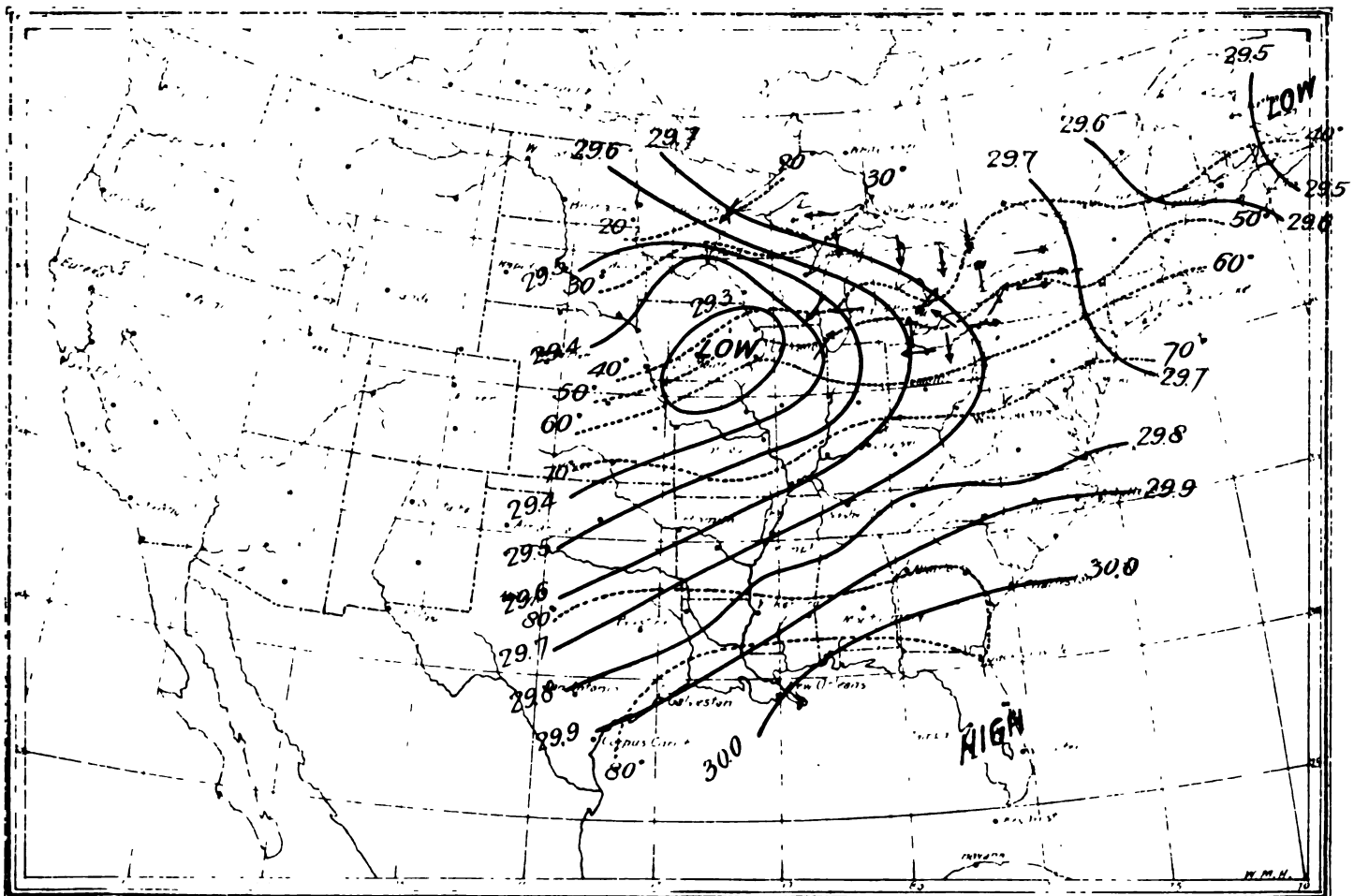


Chart CLV.

March 5, 1880—7 a. m.

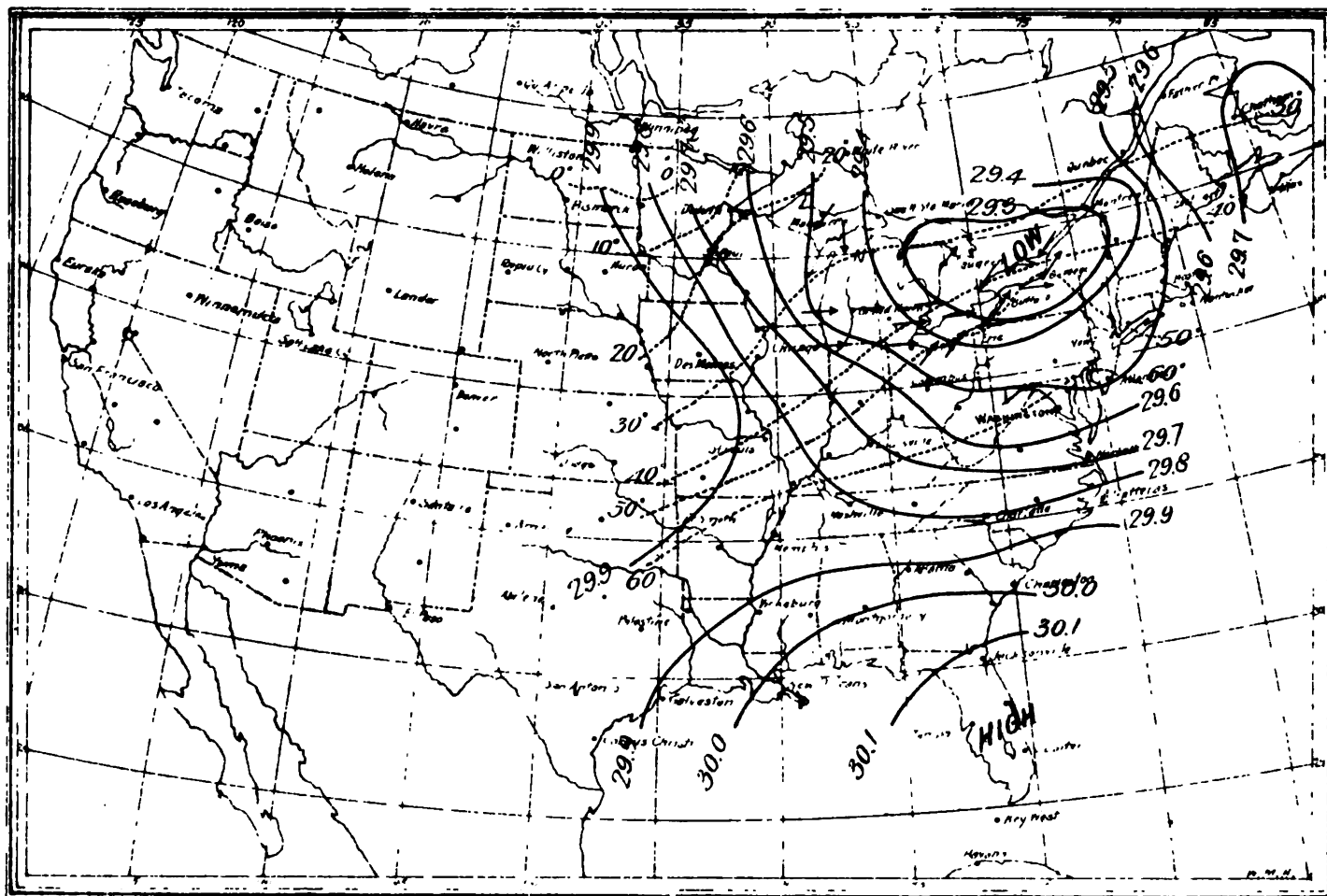


Chart CLVI.

March 5, 1880—3 p. m.

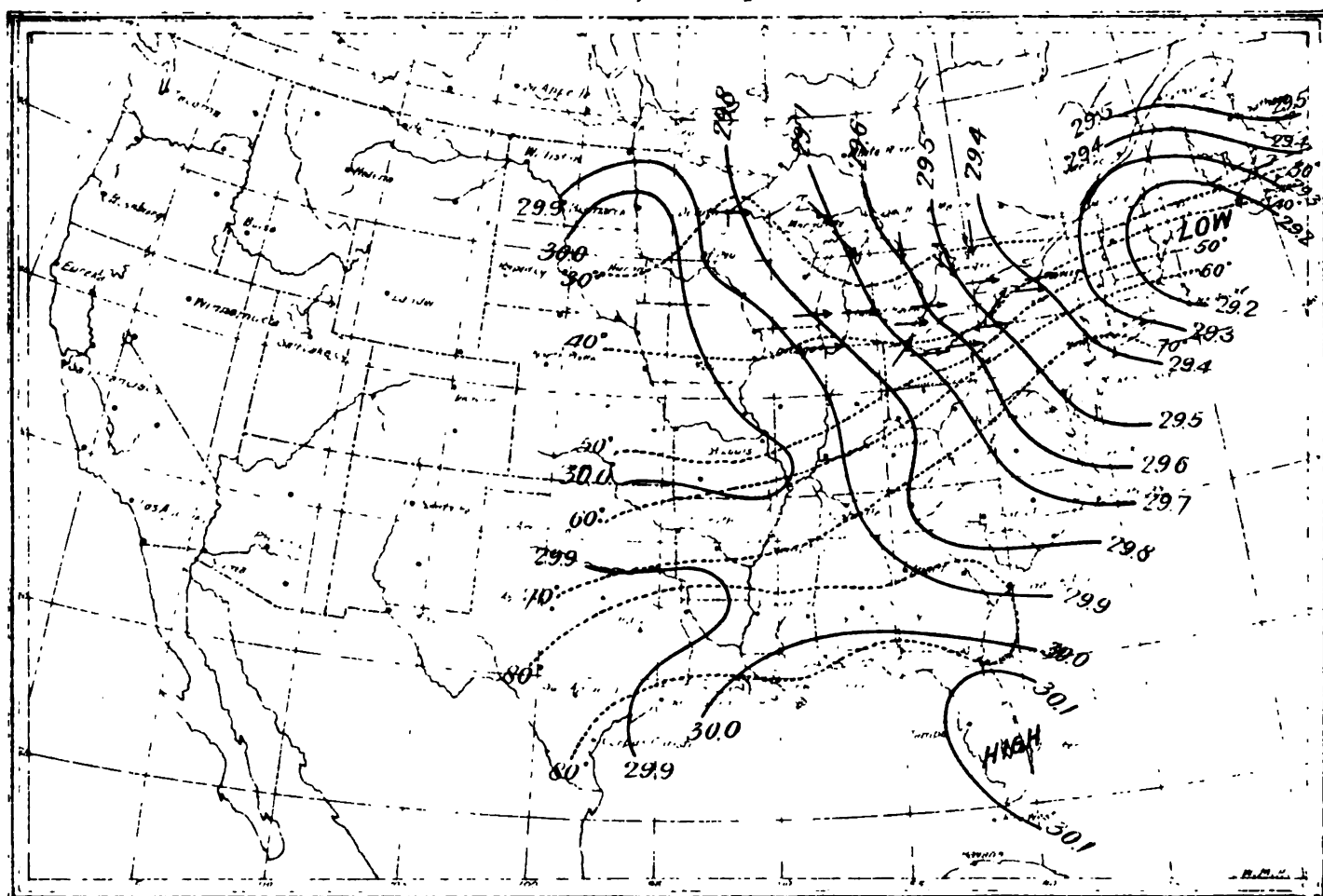


Chart OLVII.

March 26, 1880—7 a. m.

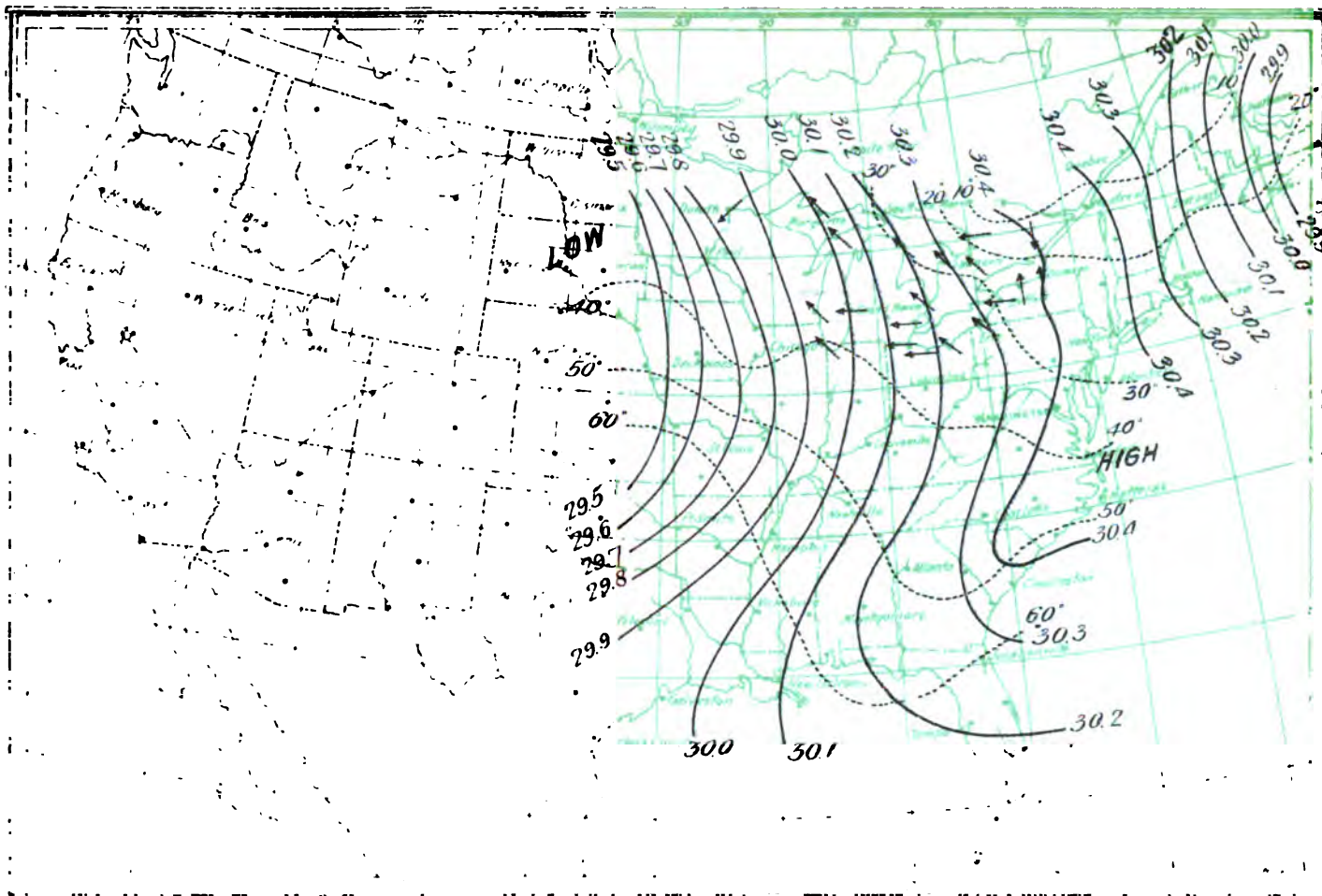


Chart OLVIII.

March 26, 1880—8 p. m.

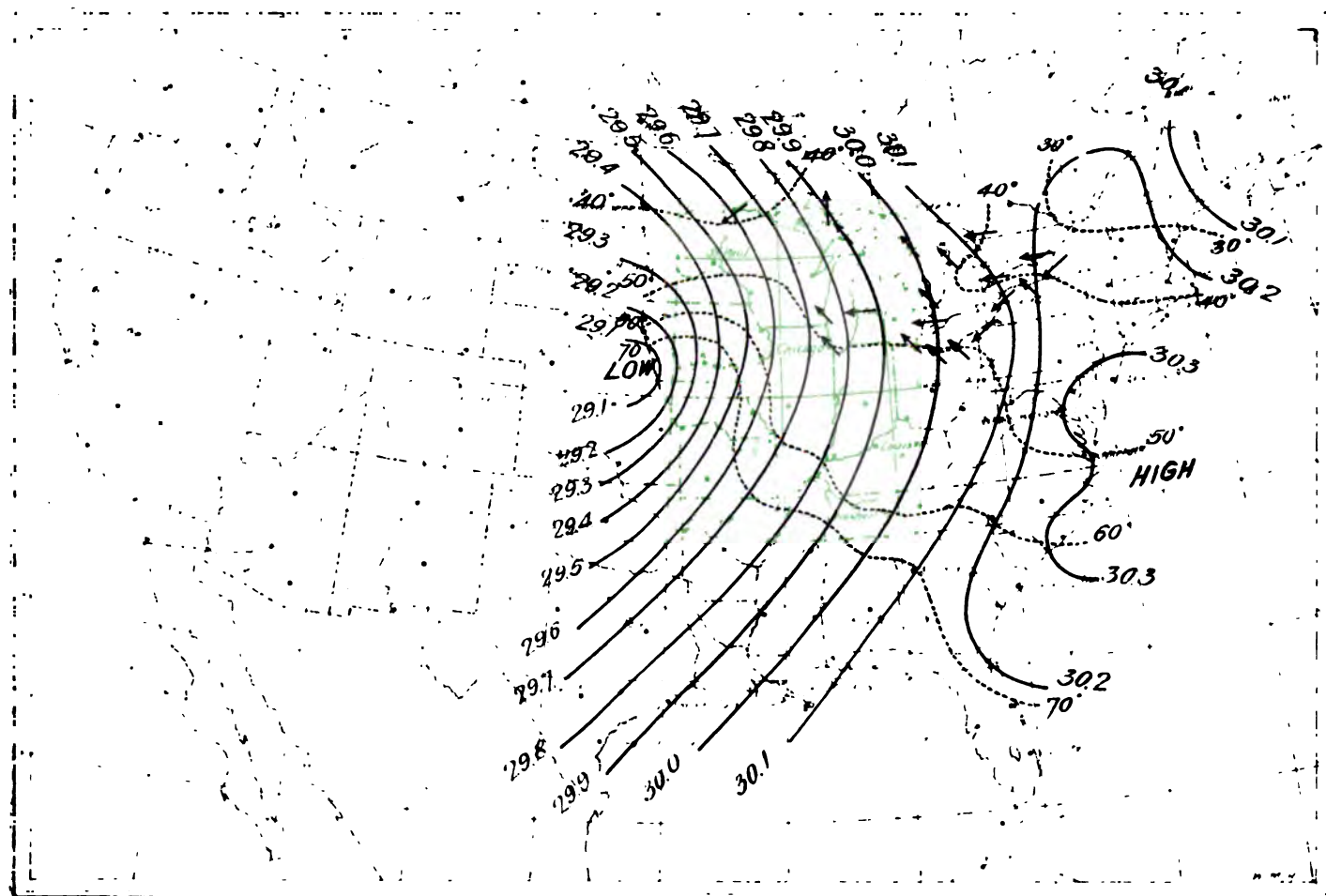


Chart OLIX.

March 27, 1880—7 a. m.

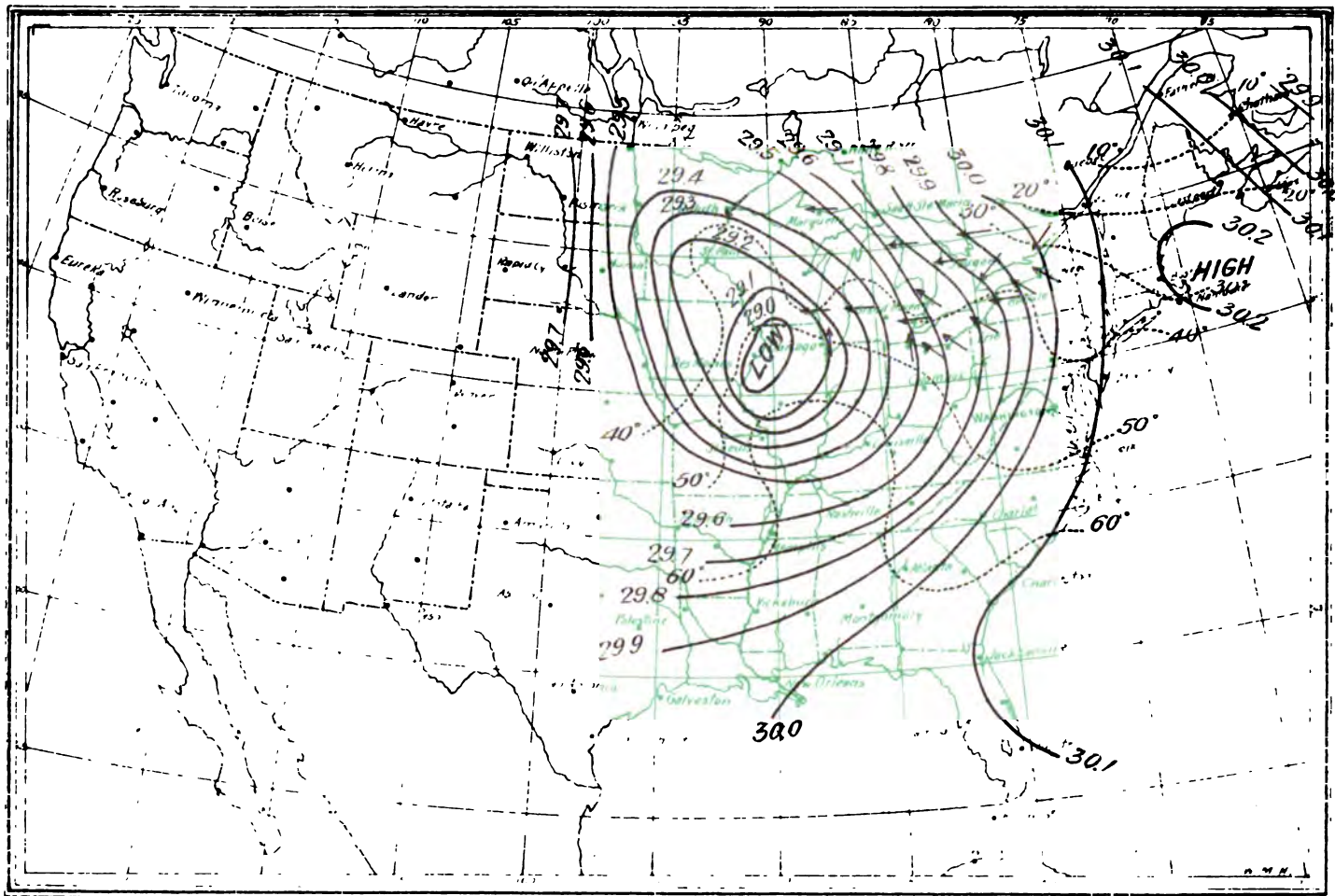


Chart OLX.

March 27, 1880—3 p. m.

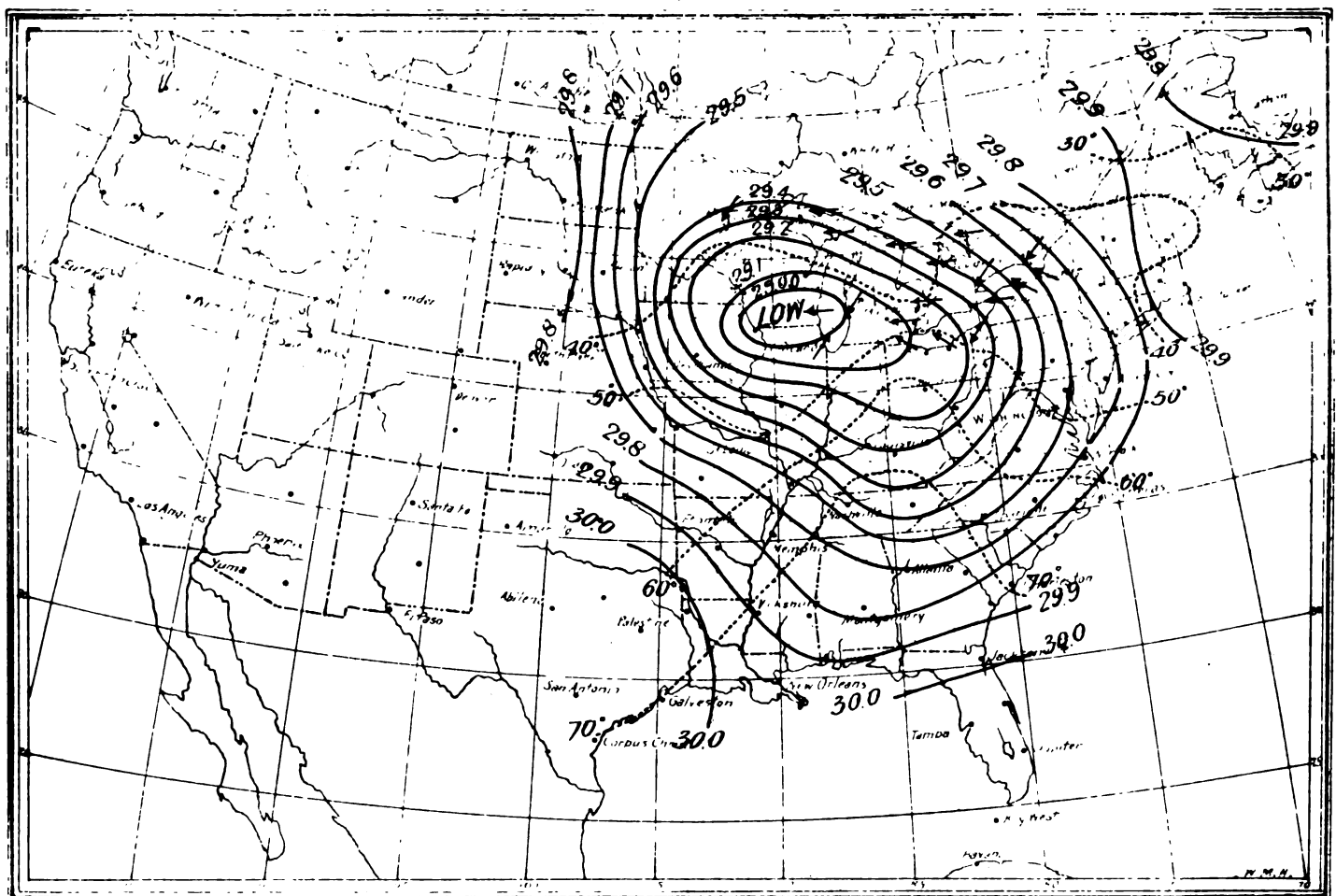


Chart OLXI.

March 18, 1881—7 a. m.

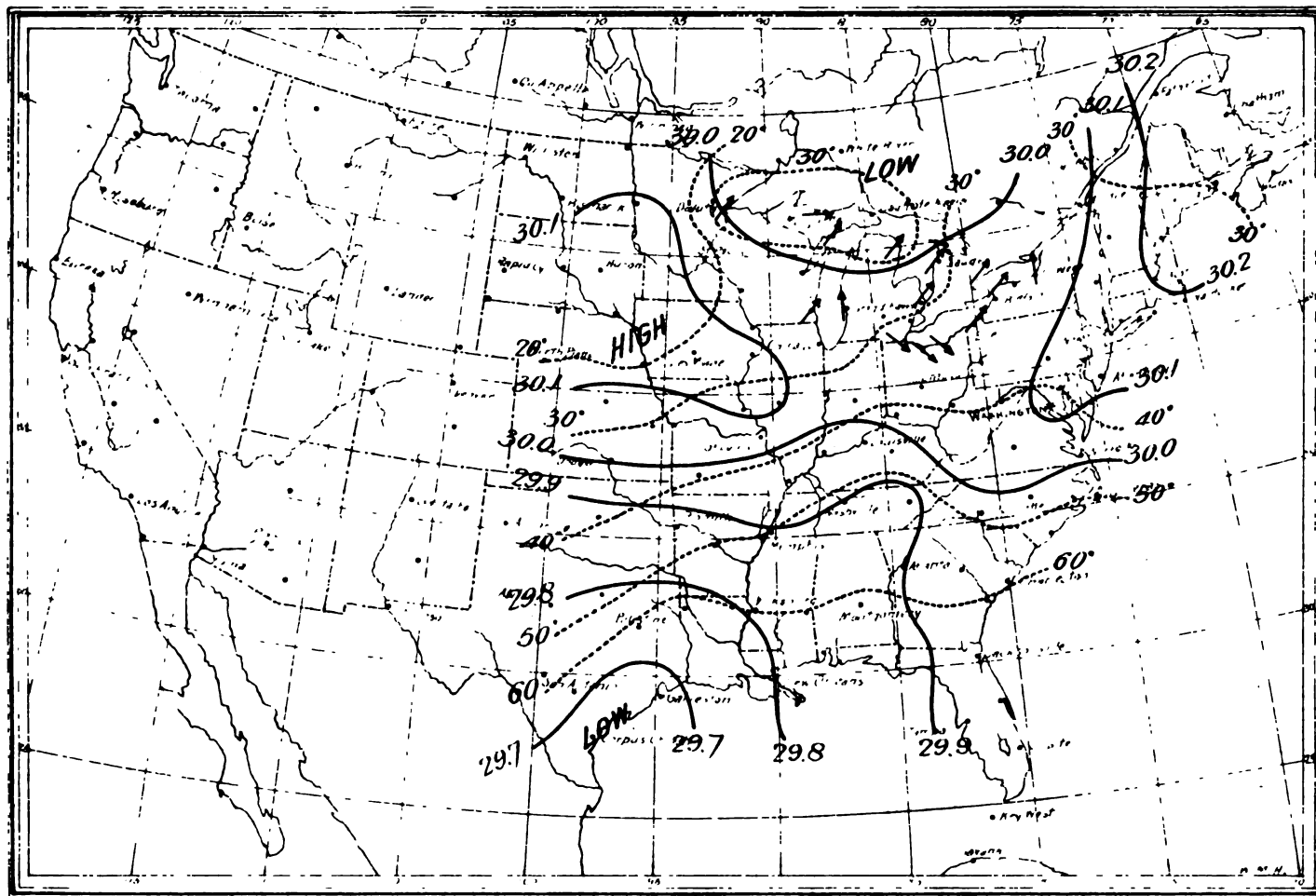


Chart OLXII.

March 18, 1881—3 p. m.

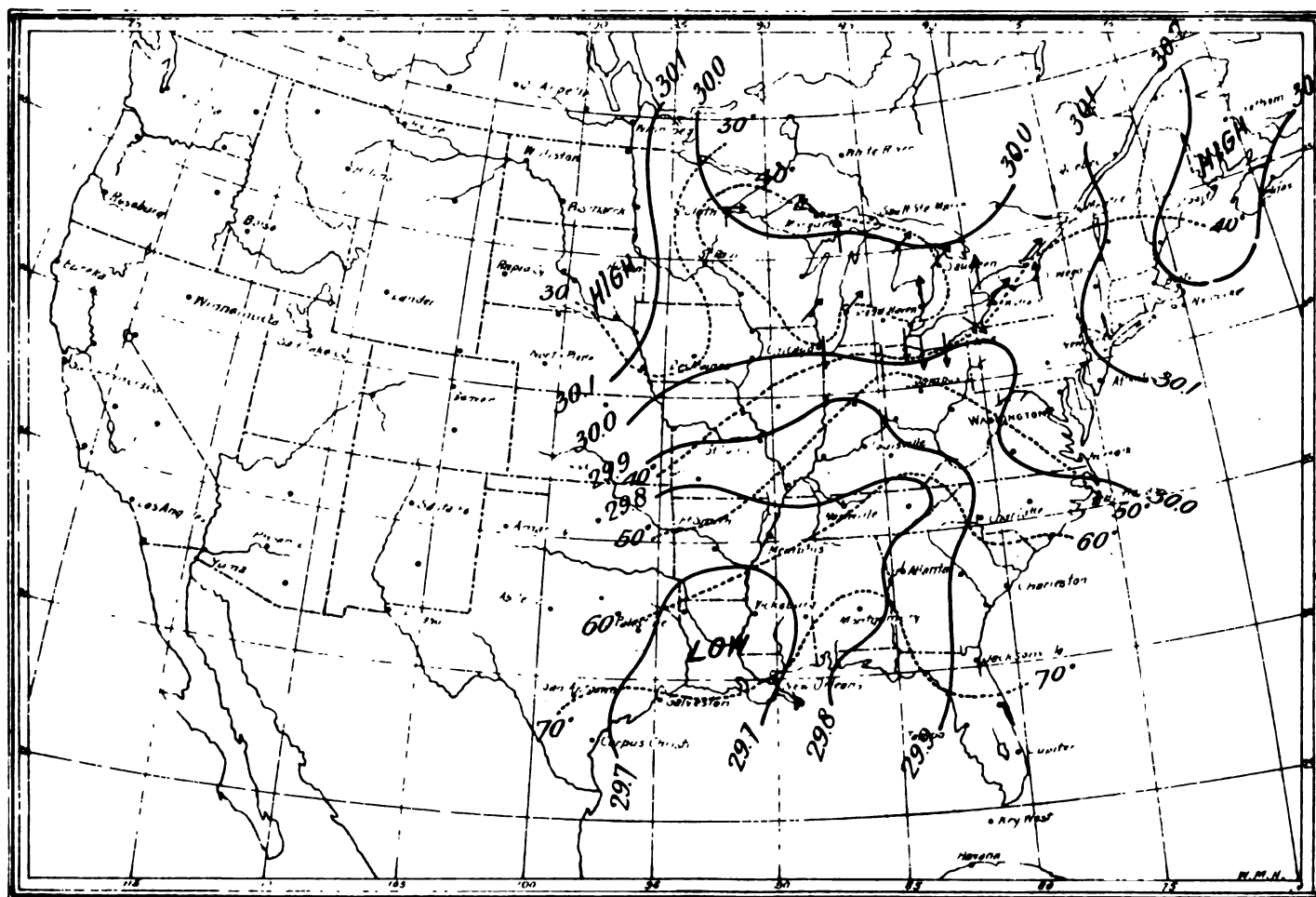


Chart O LXIII.

March 19, 1881—7 a. m.

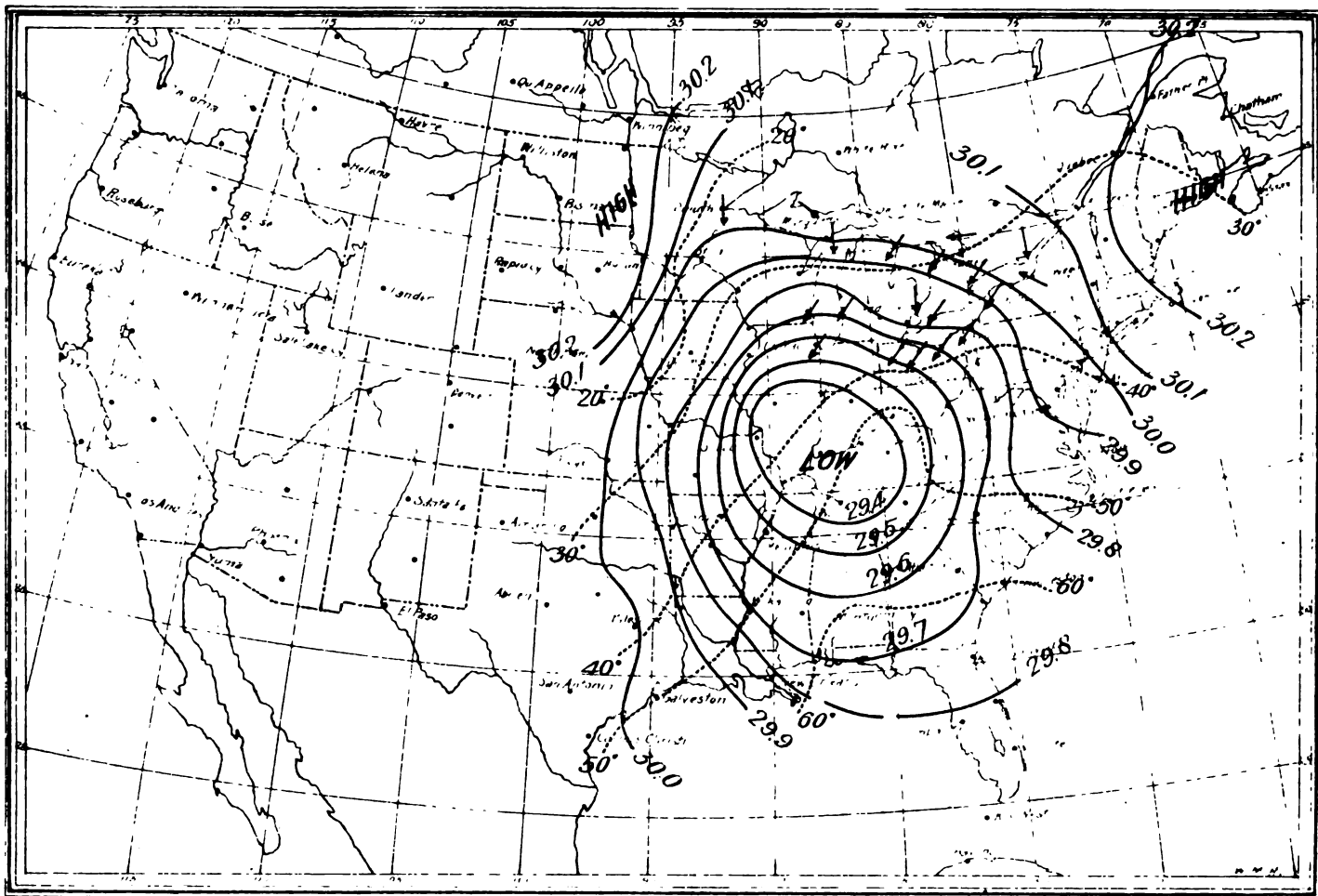


Chart O LXIV.

March 19, 1881—3 p. m.

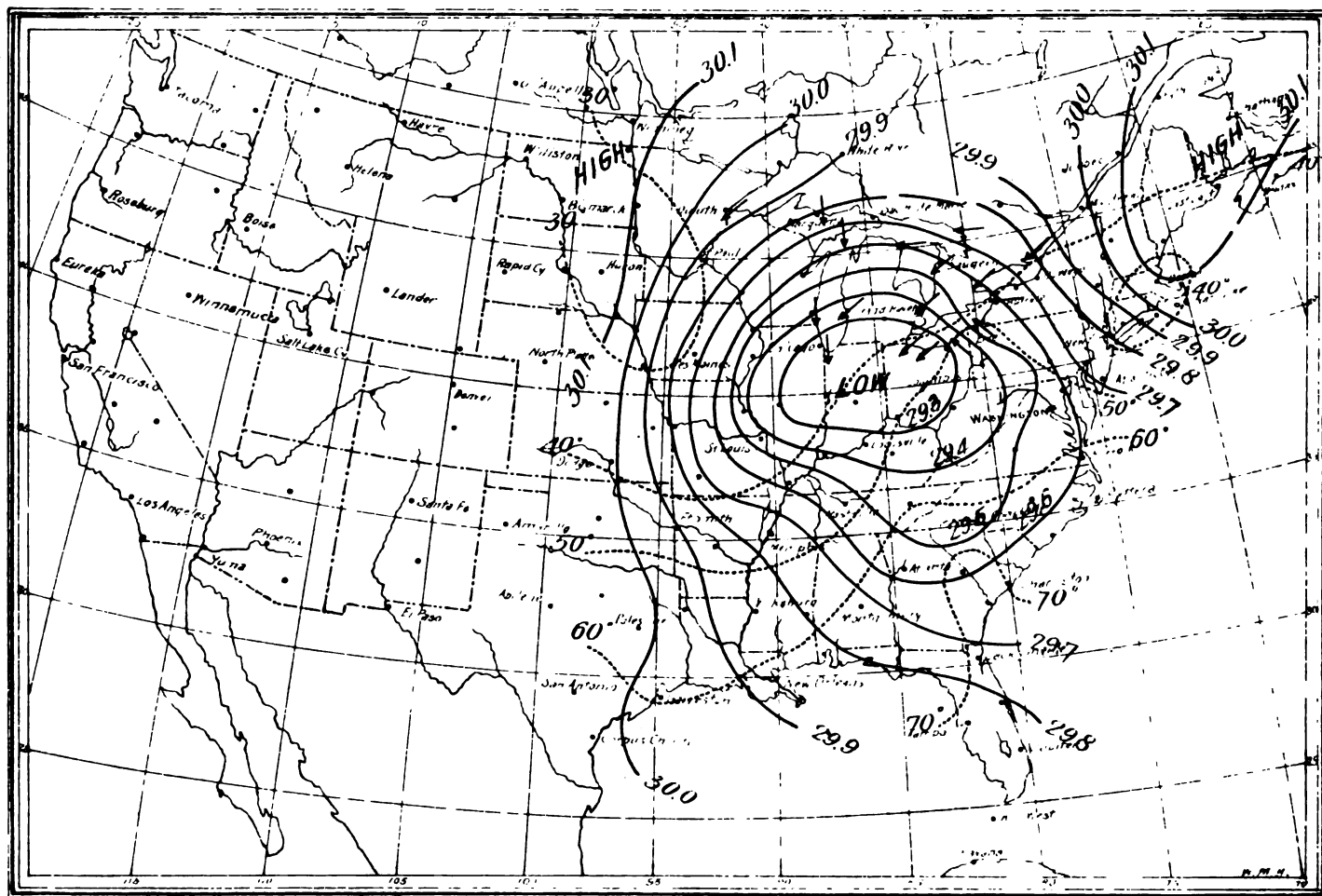


Chart OLVV.

March 8, 1882—7 a. m.

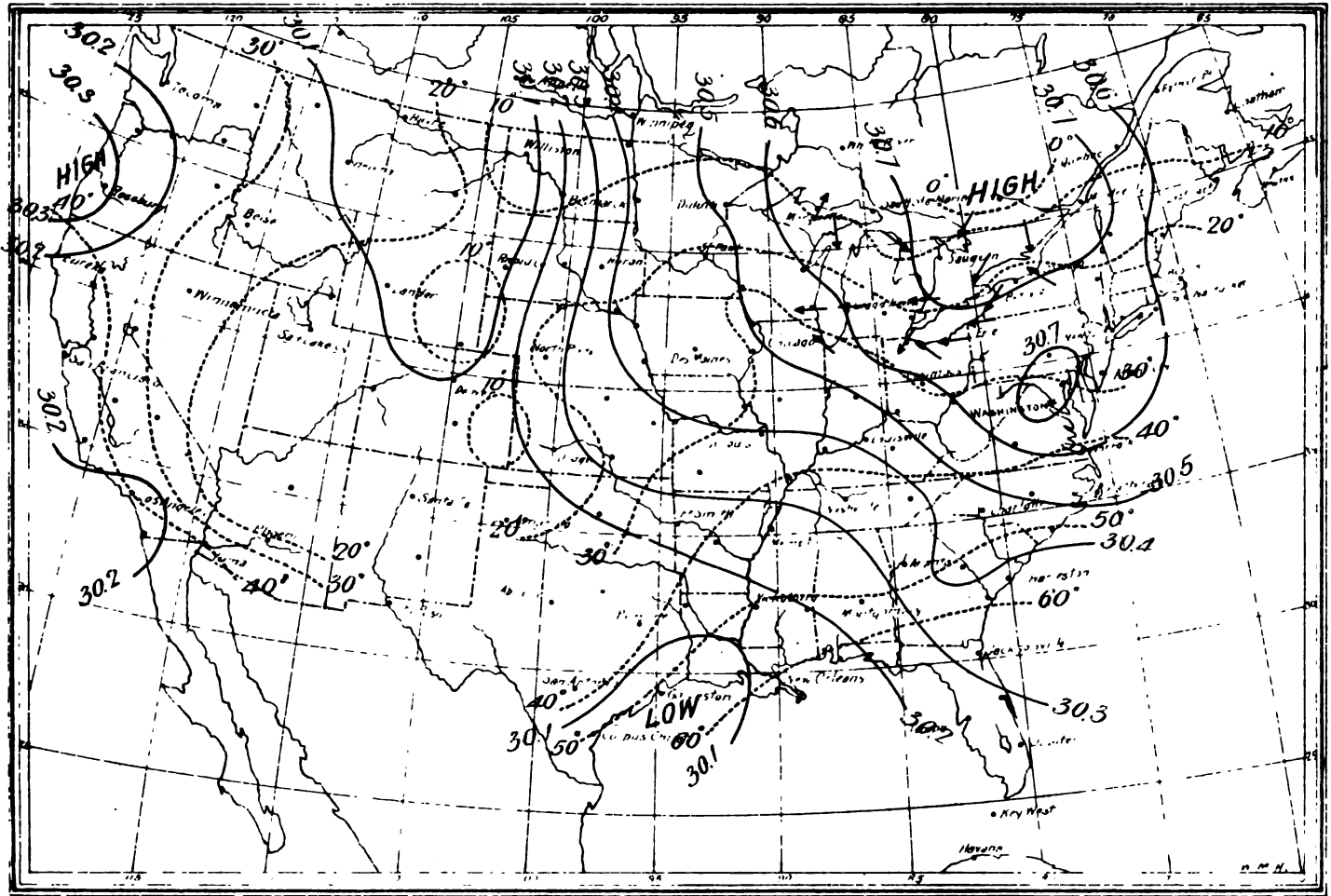


Chart OLVVI.

March 8, 1882—3 p. m.

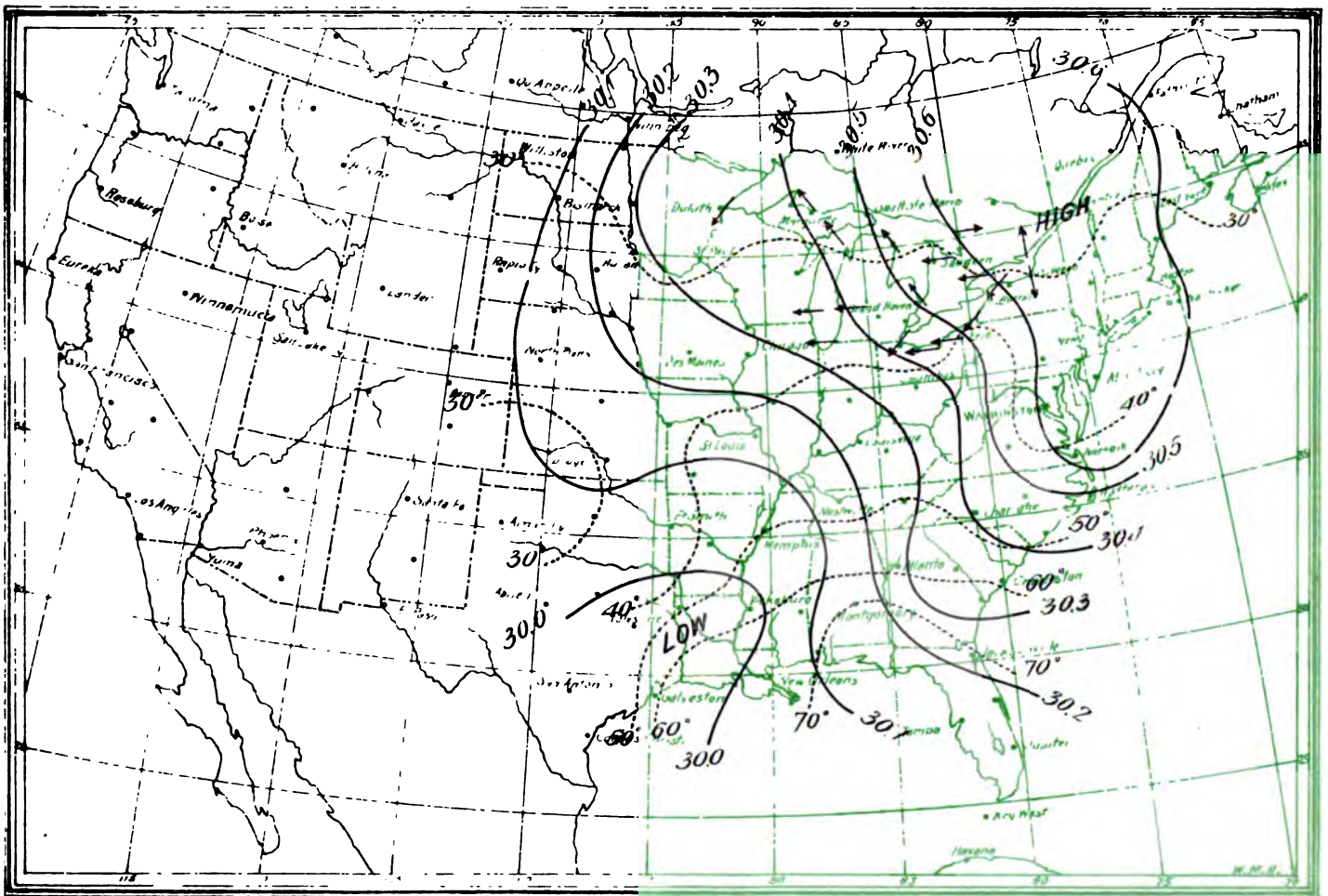


Chart OLVII.

March 9, 1882—7 a. m.

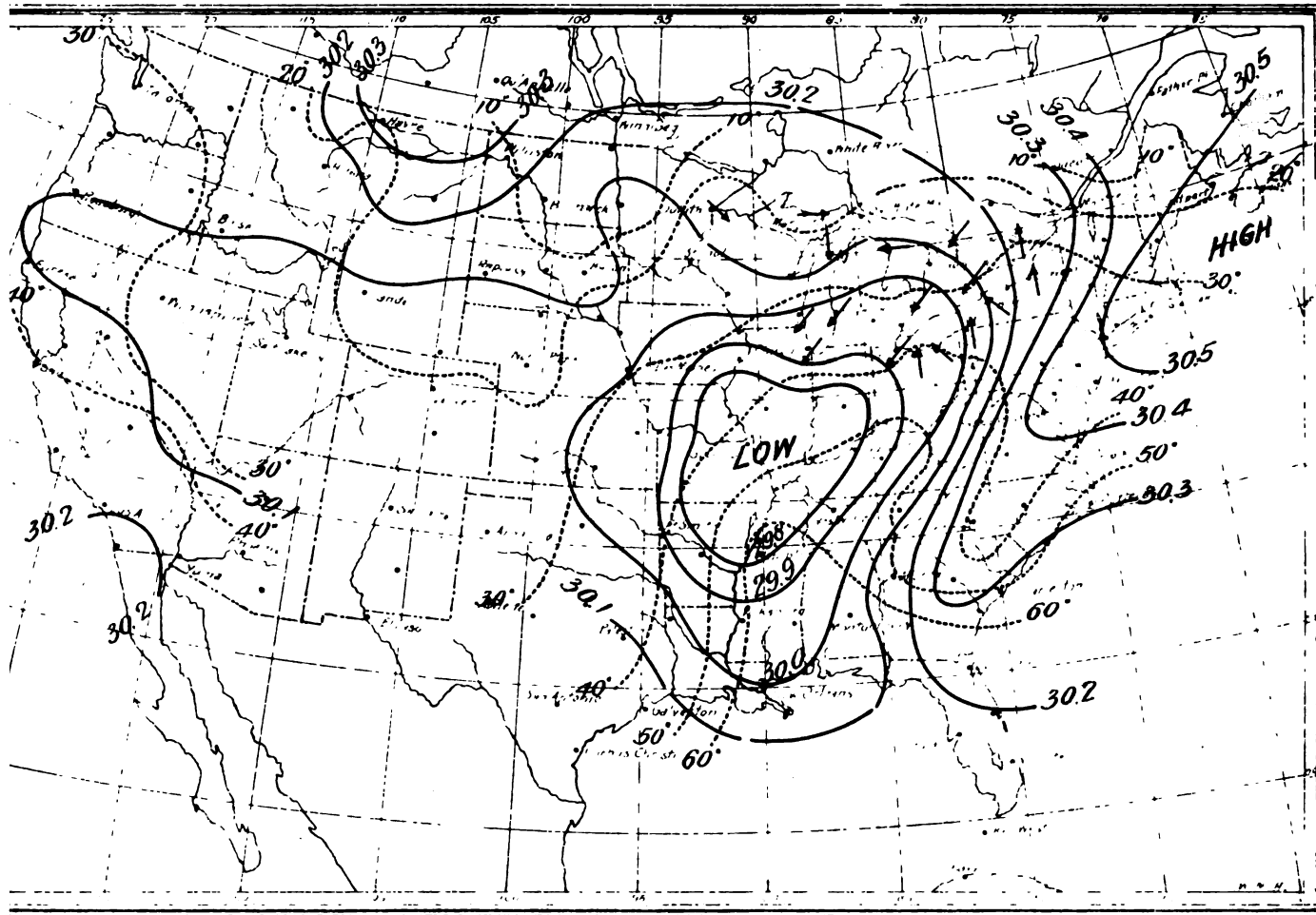


Chart OLVIII.

March 9, 1882—3 p. m.

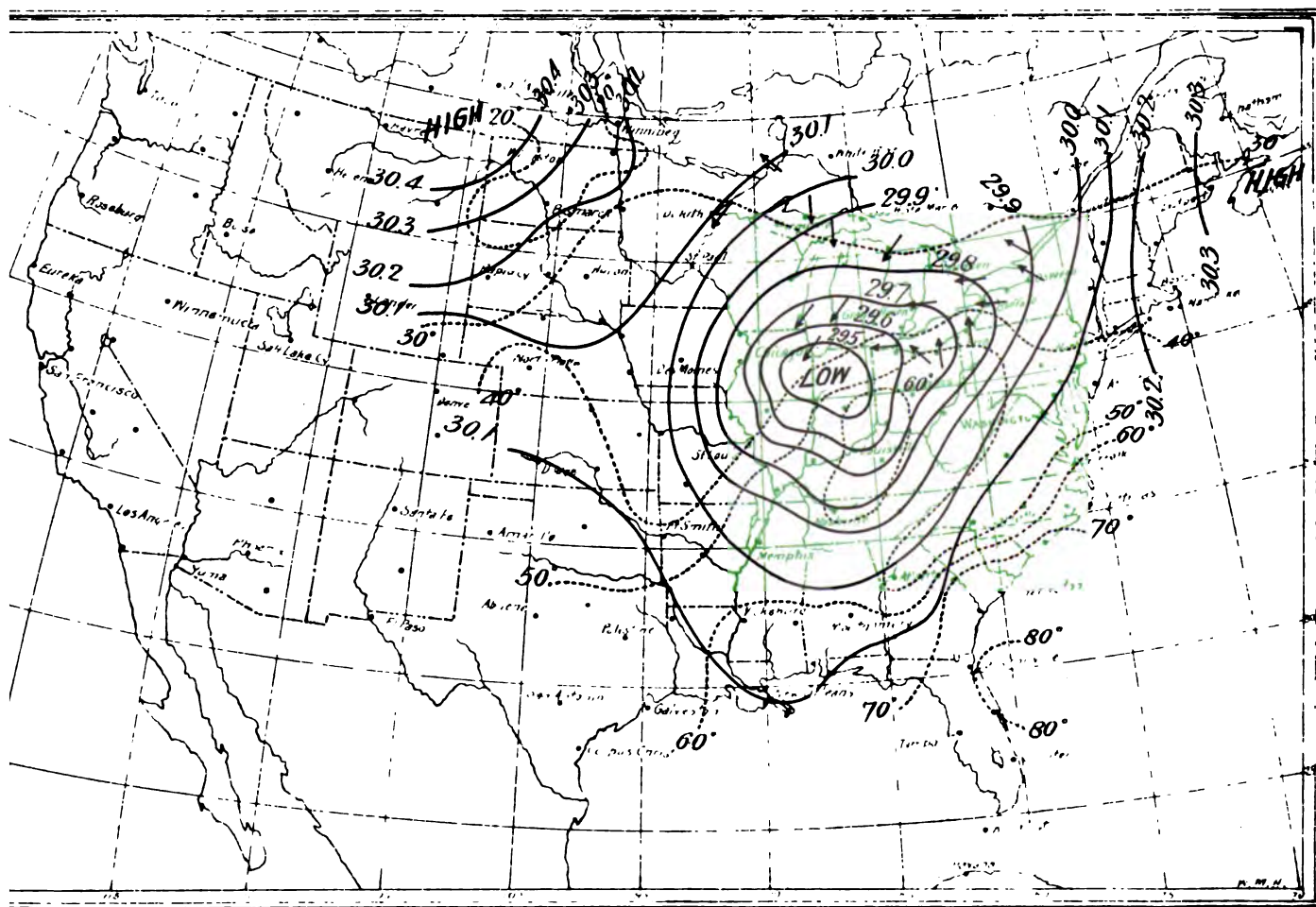


Chart OLXIX.

March 20, 1882—7 a. m.

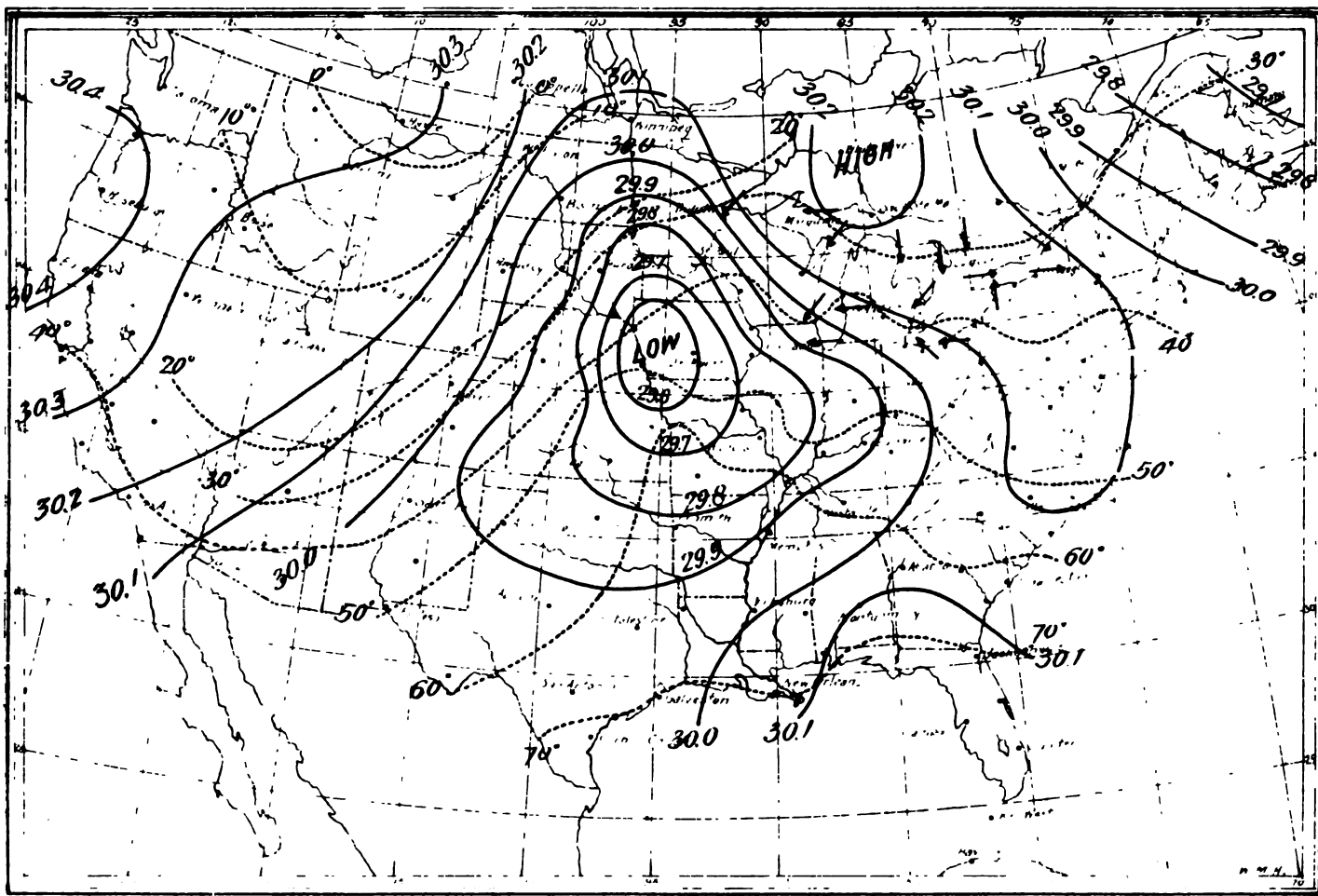


Chart OLXX.

March 20, 1882—3 p. m.

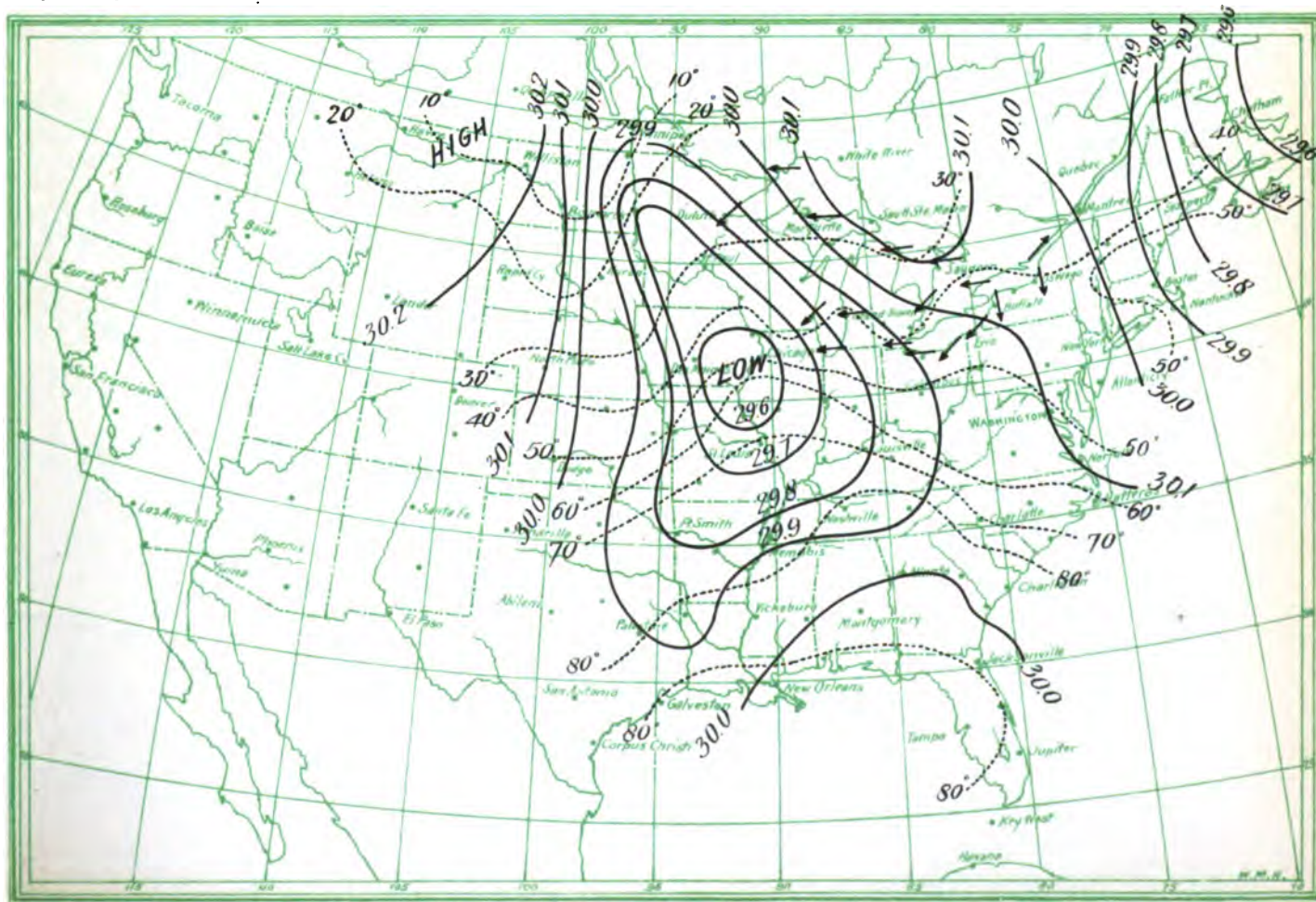


Chart OLXXI.

March 21, 1882—7 a. m.

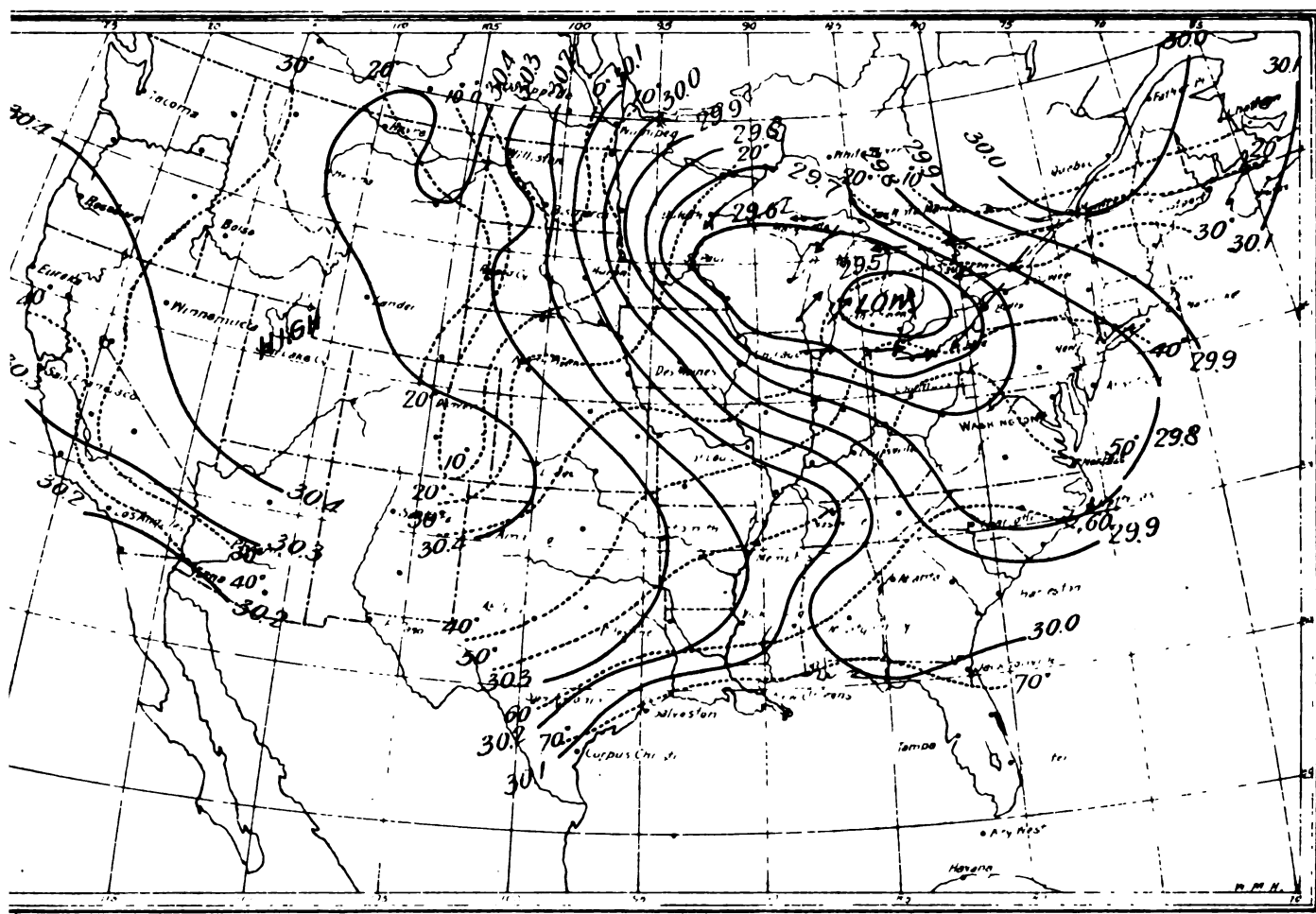


Chart OLXXII.

March 21, 1882—3 p. m.

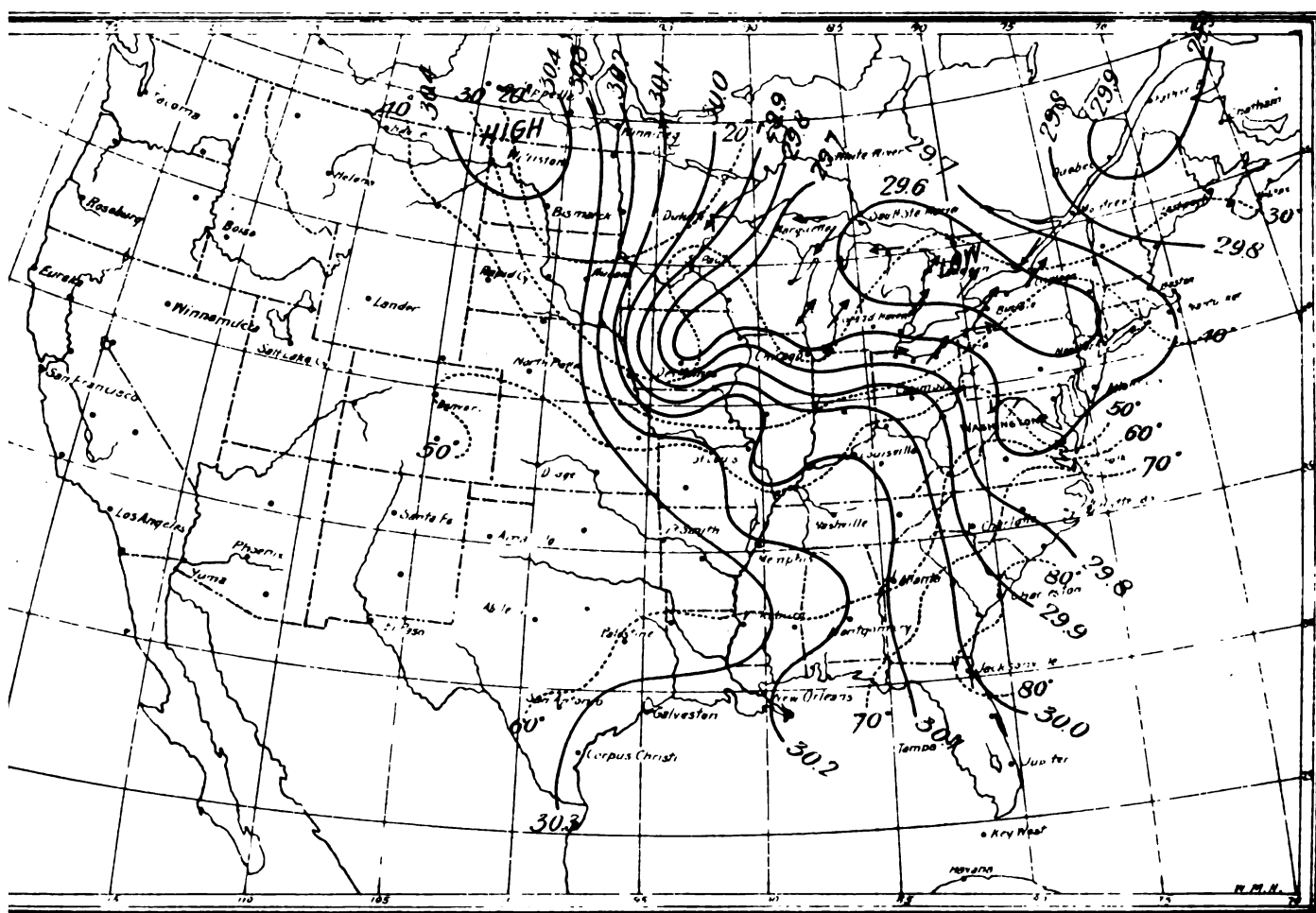


Chart OLXXIII.

March 10, 1884—7 a. m.

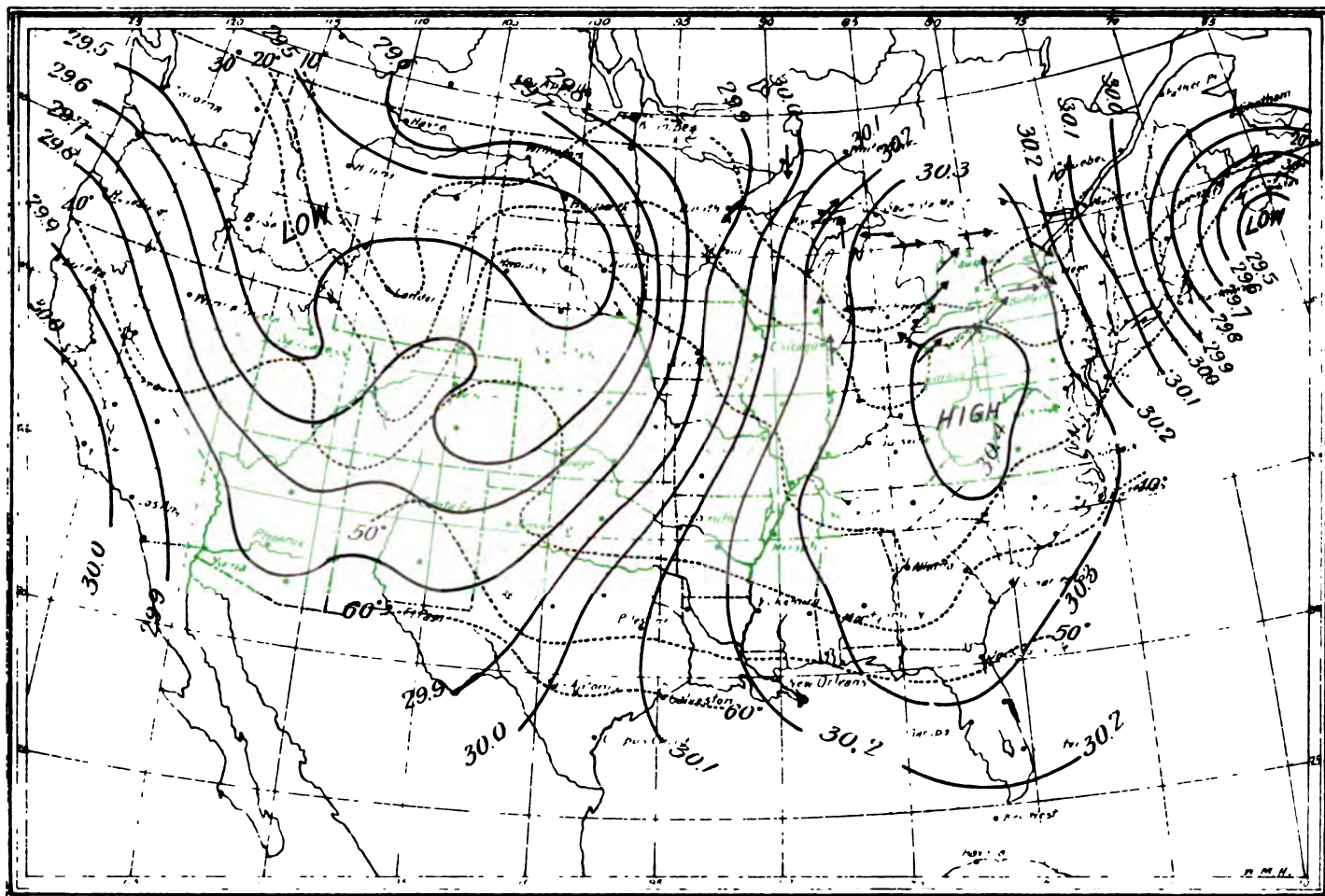


Chart OLXXIV.

March 10, 1884—3 p. m.

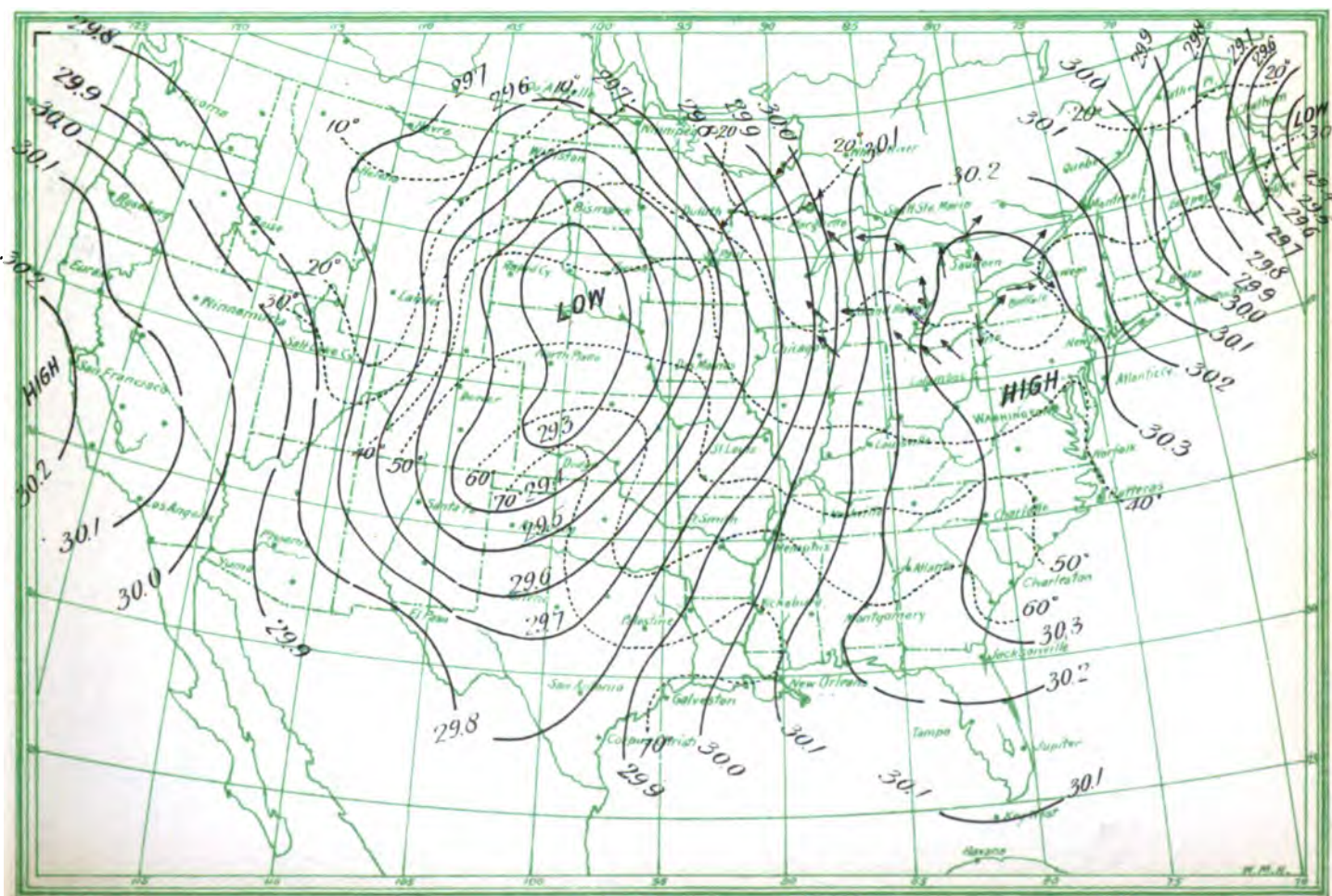


Chart OLXXV.

March 11, 1884—7 a. m.

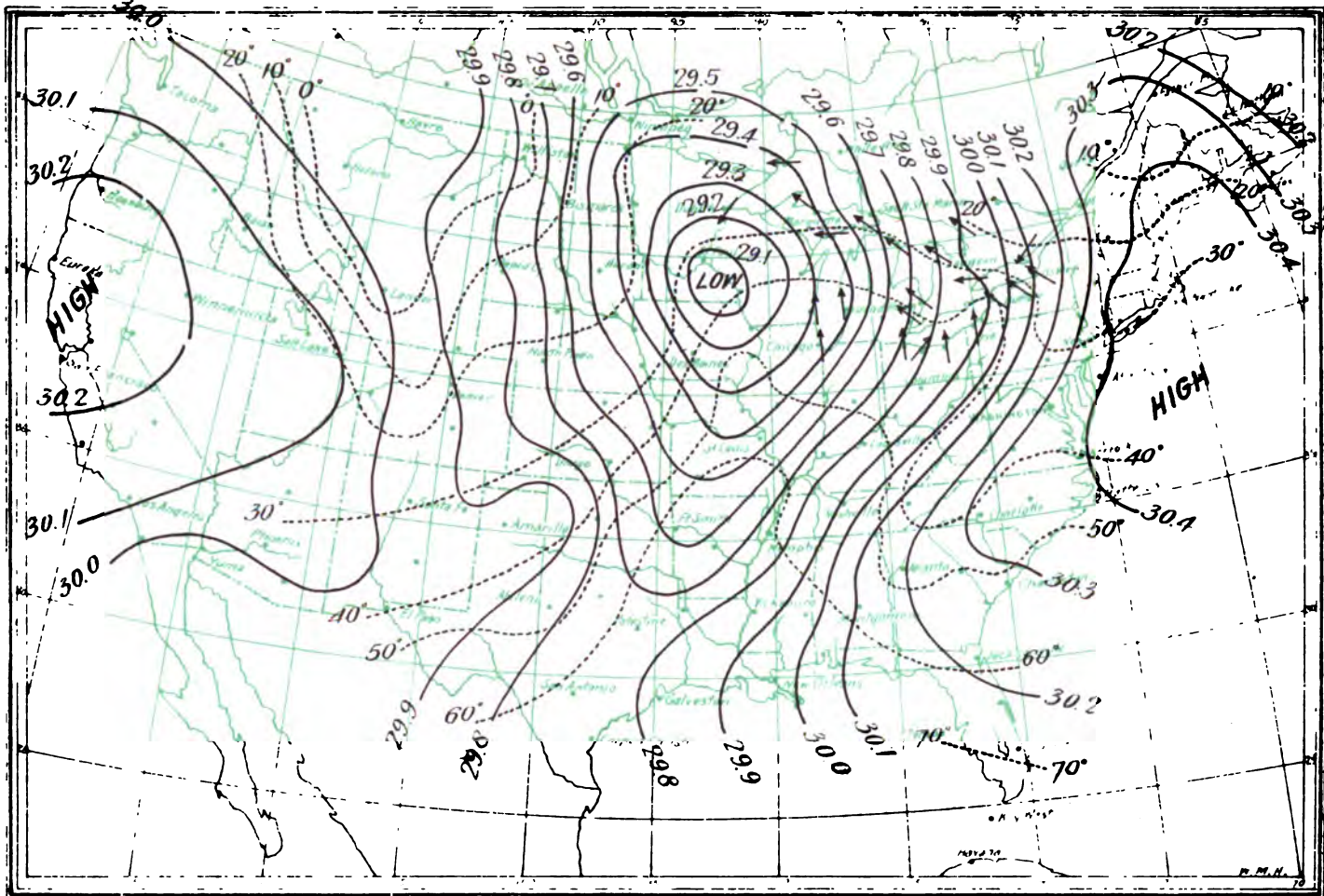


Chart OLXXVI.

March 11, 1884—8 p. m.

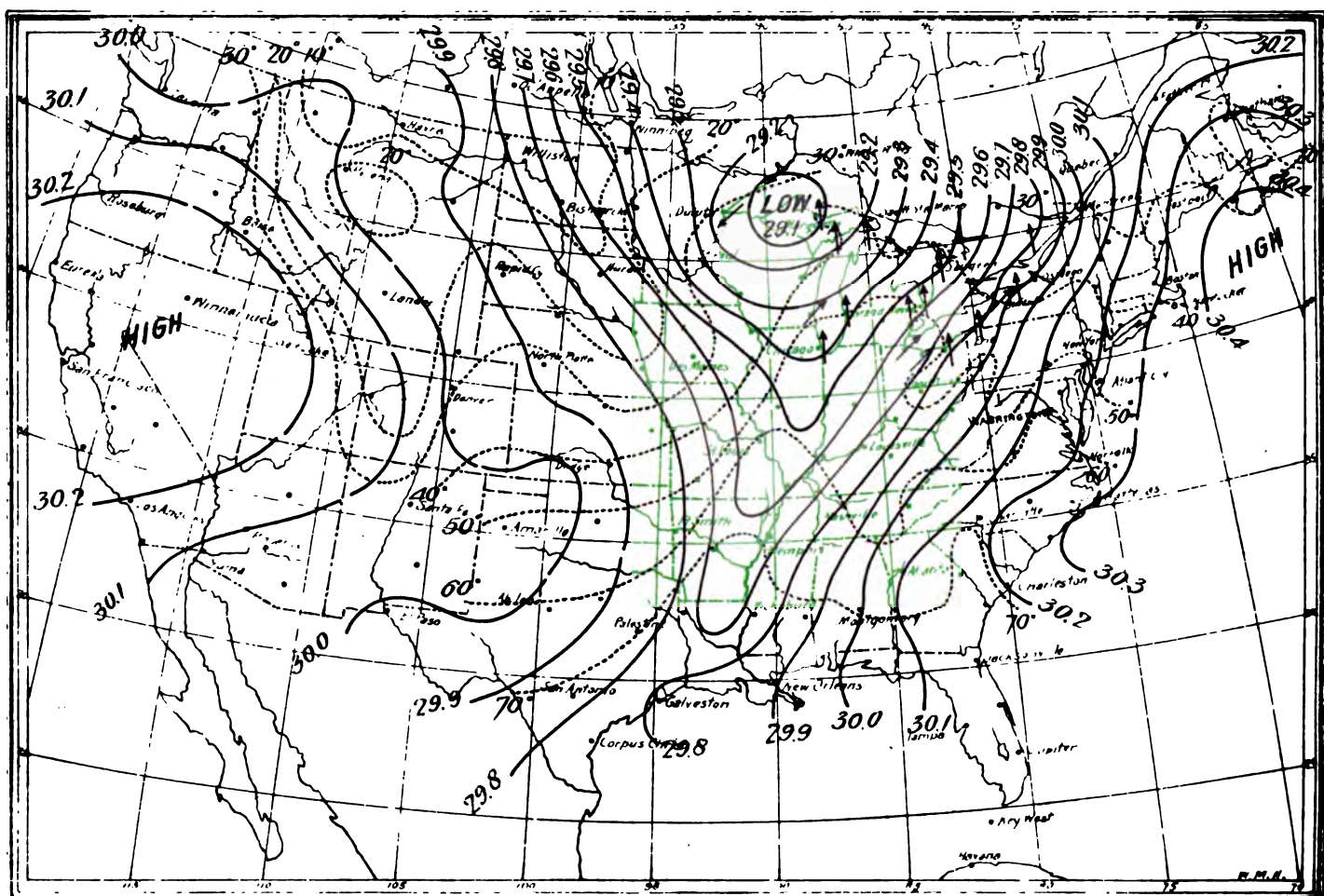


Chart CLXXVII.

March 13, 1885—7 a. m.

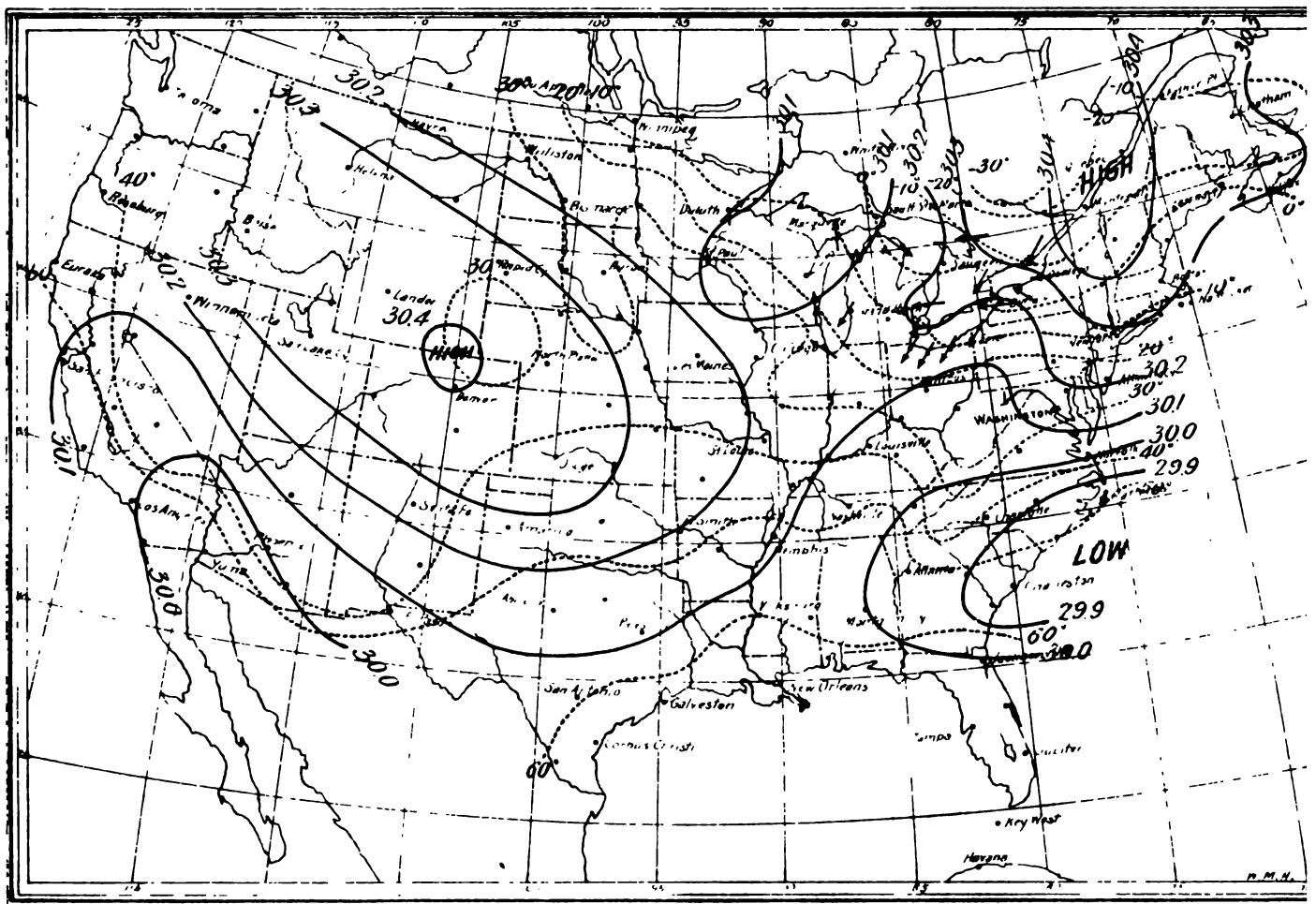
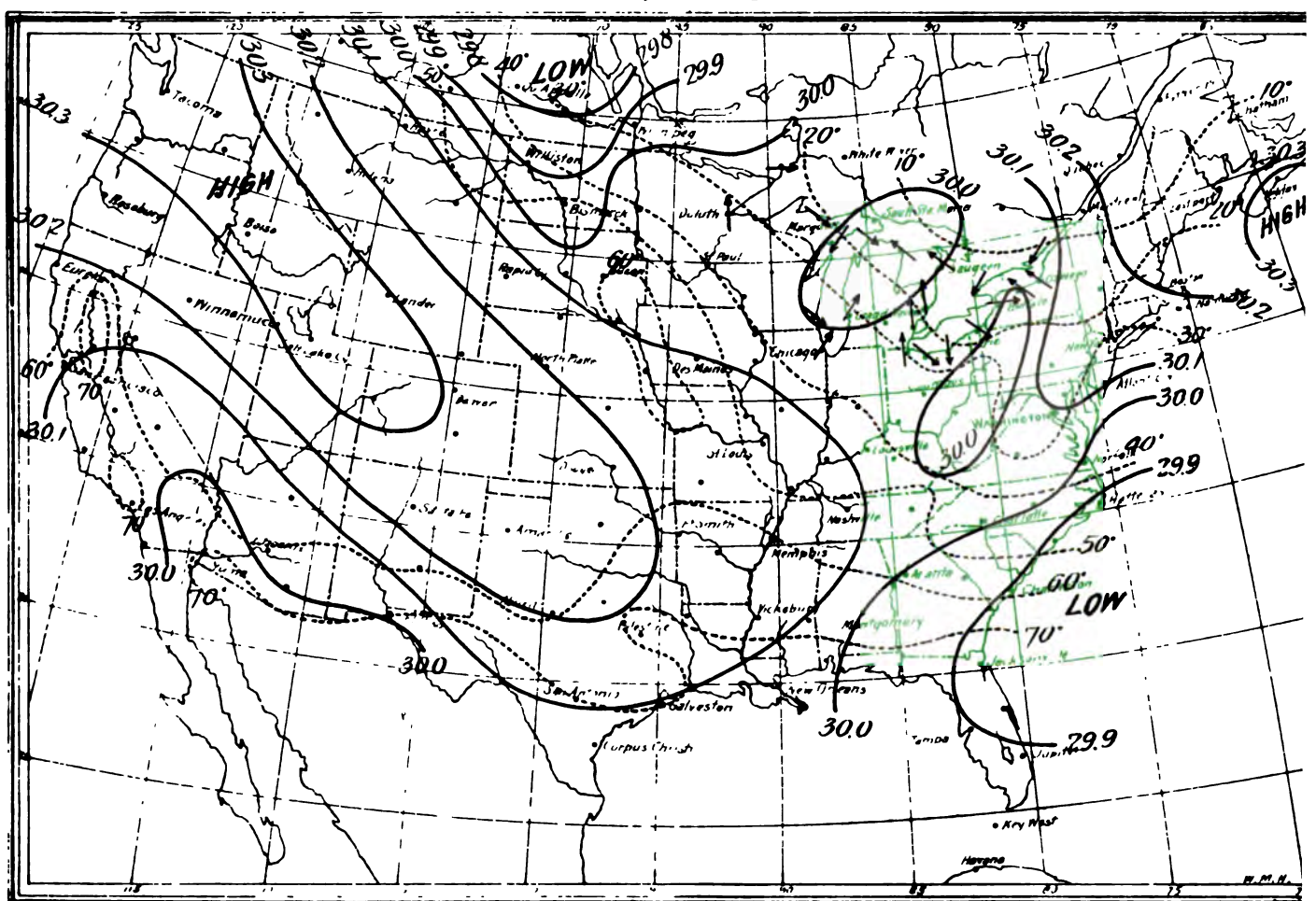
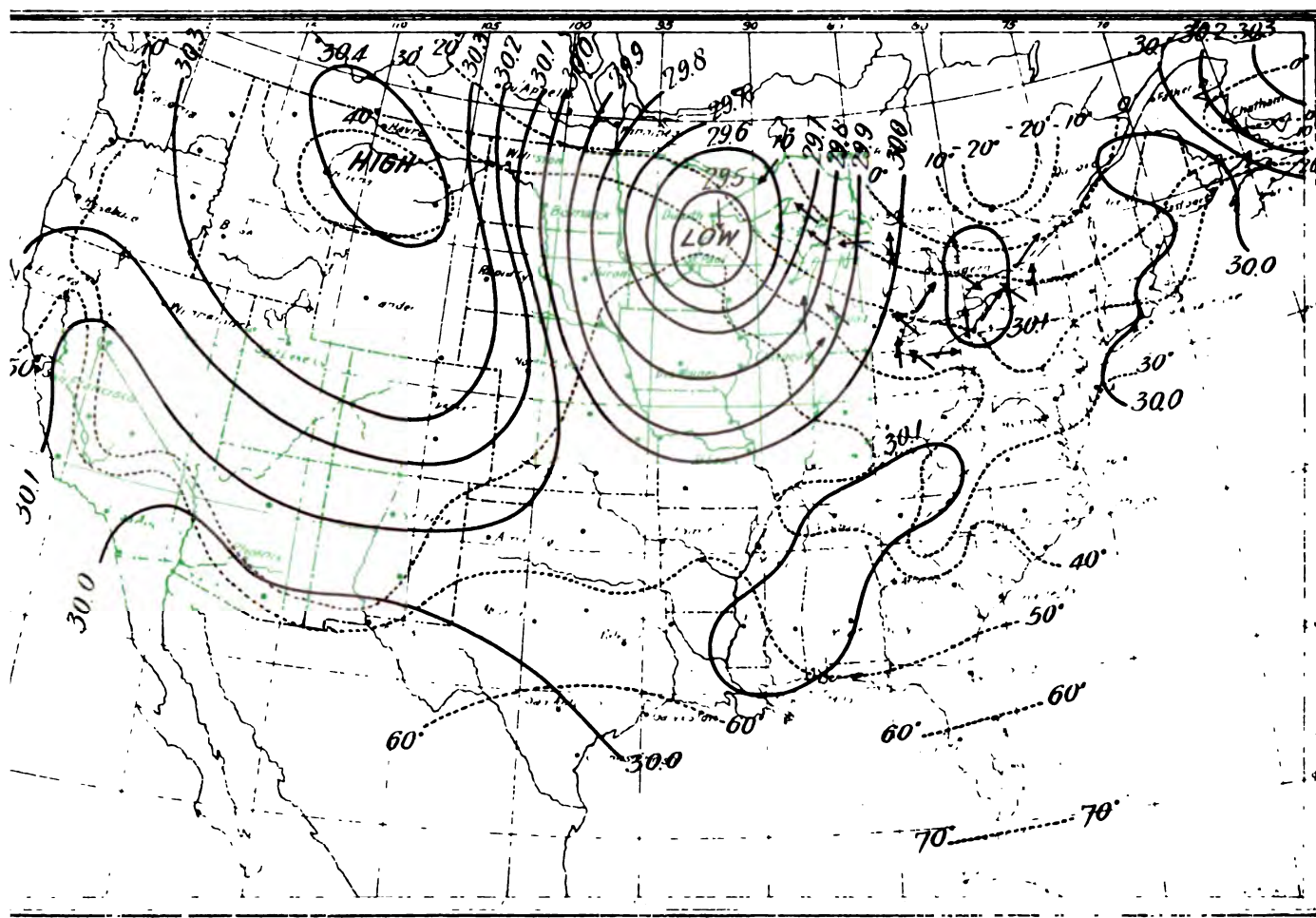


Chart CLXXVIII.

March 13, 1885—3 p. m.



March 14, 1885—7 a. m.



March 14, 1885—3 p. m.

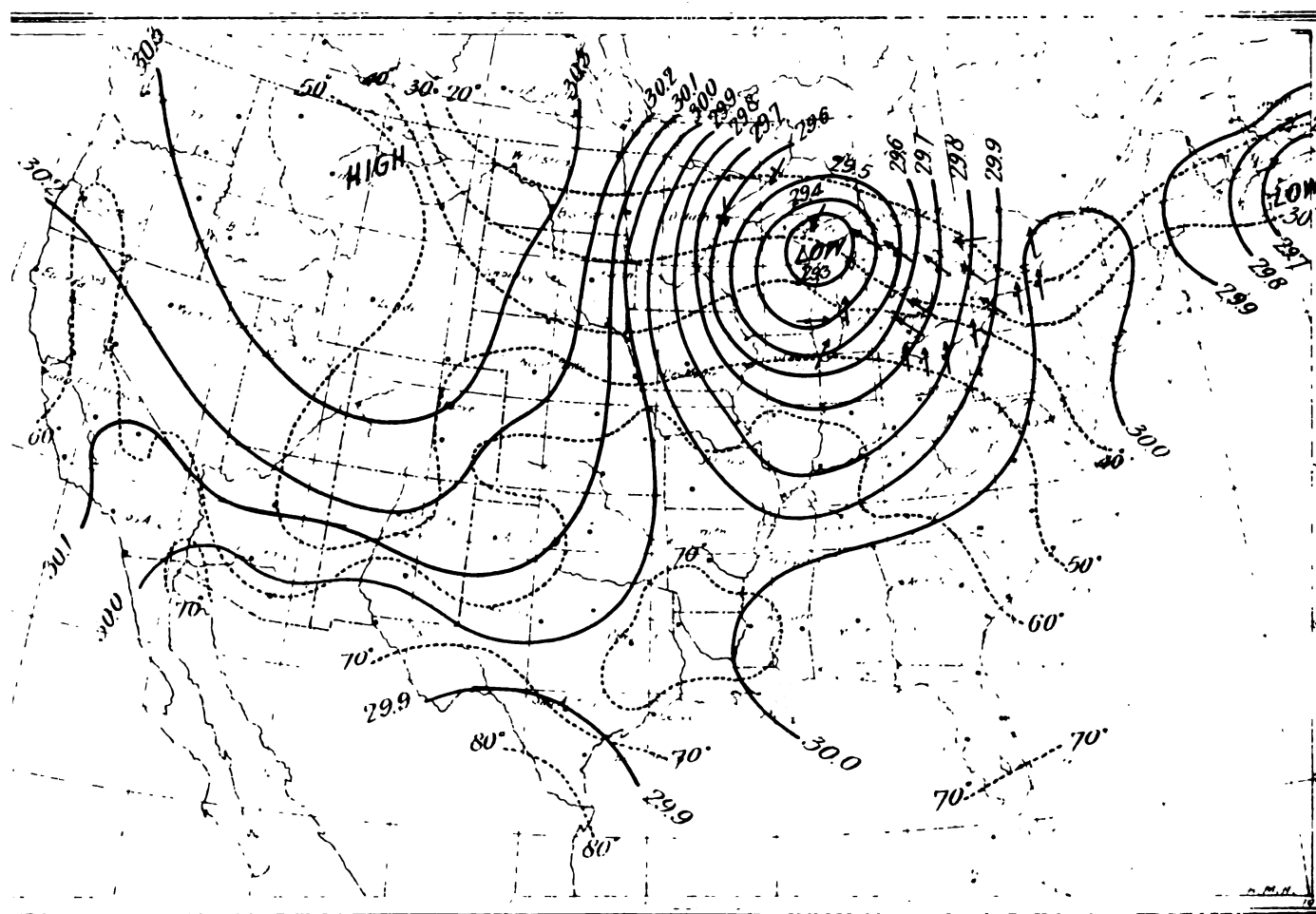


Chart OLXXXI.

March 26, 1890—8 p. m.

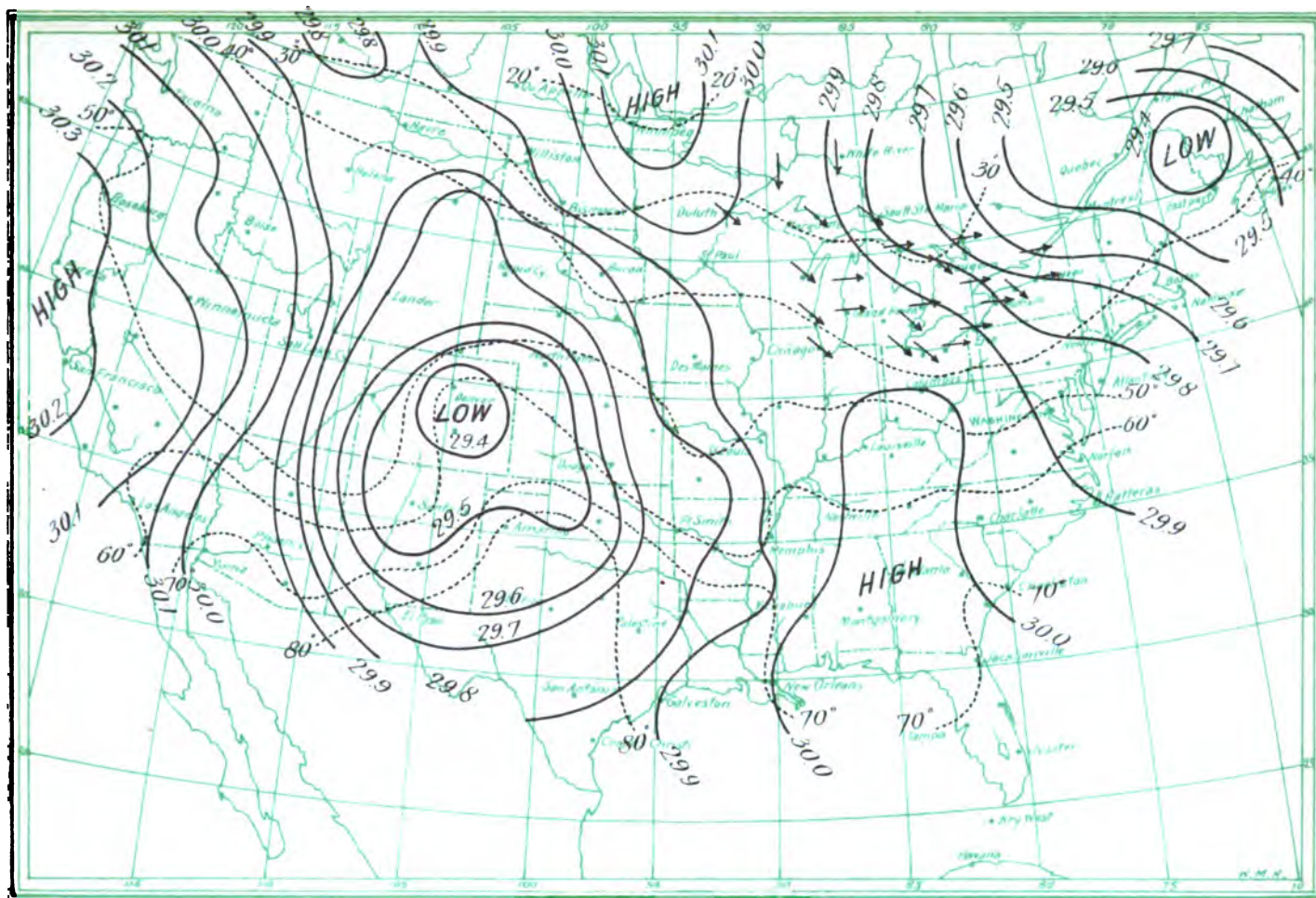


Chart OLXXXII.

March 27, 1890—8 a. m.

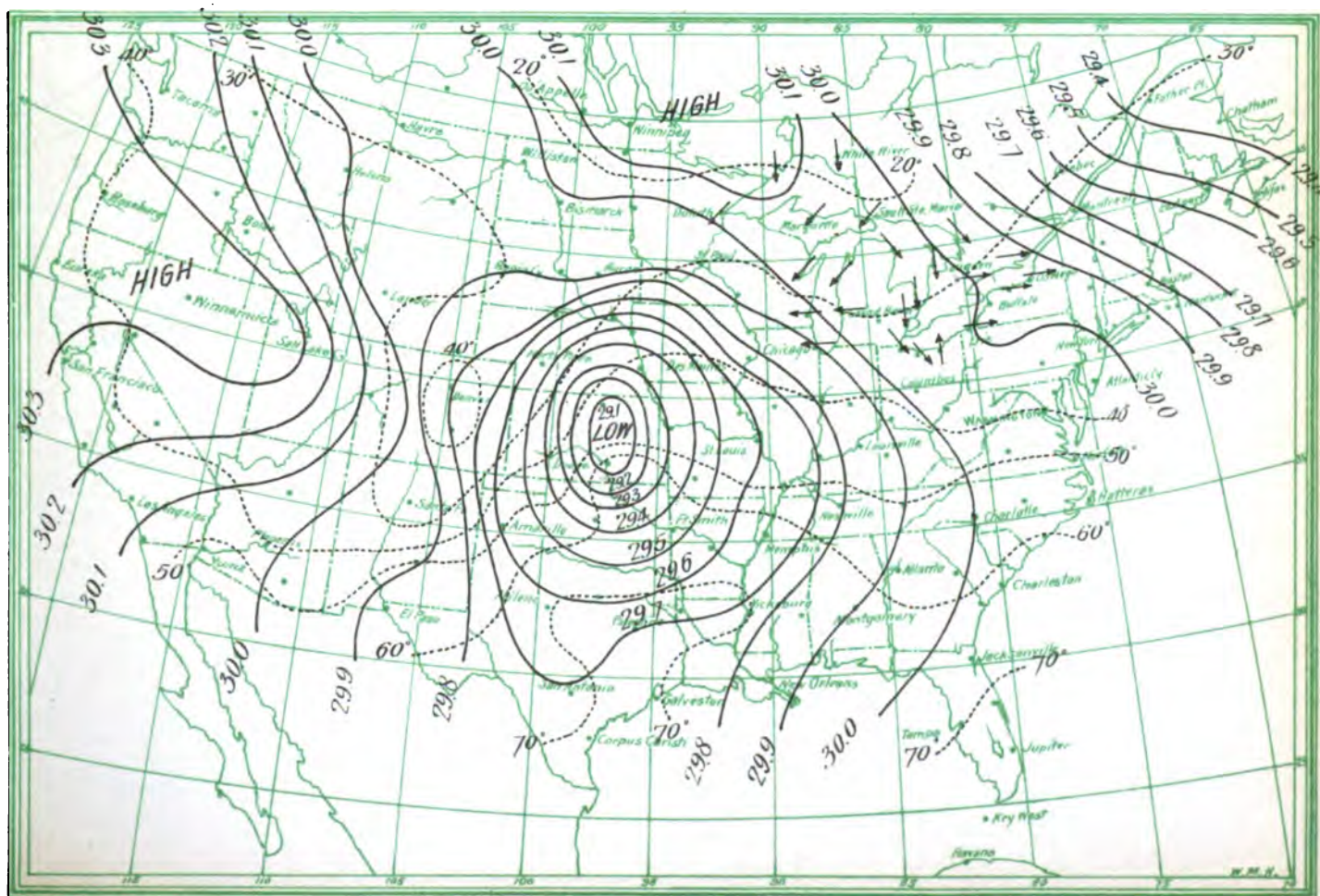


Chart OLXXXIII.

March 27, 1890—8 p. m.

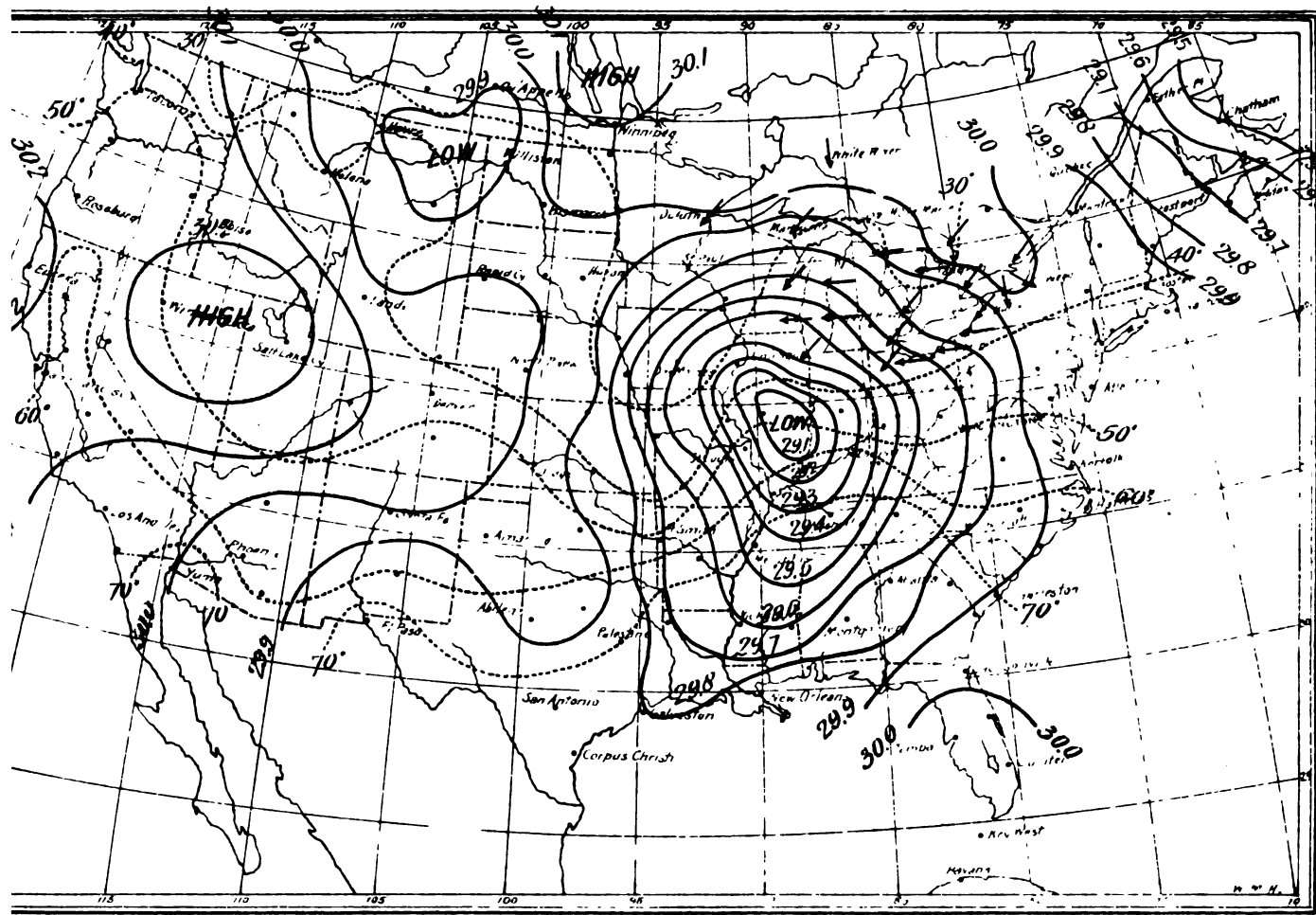


Chart OLXXXIV.

March 28, 1890—8 a. m.

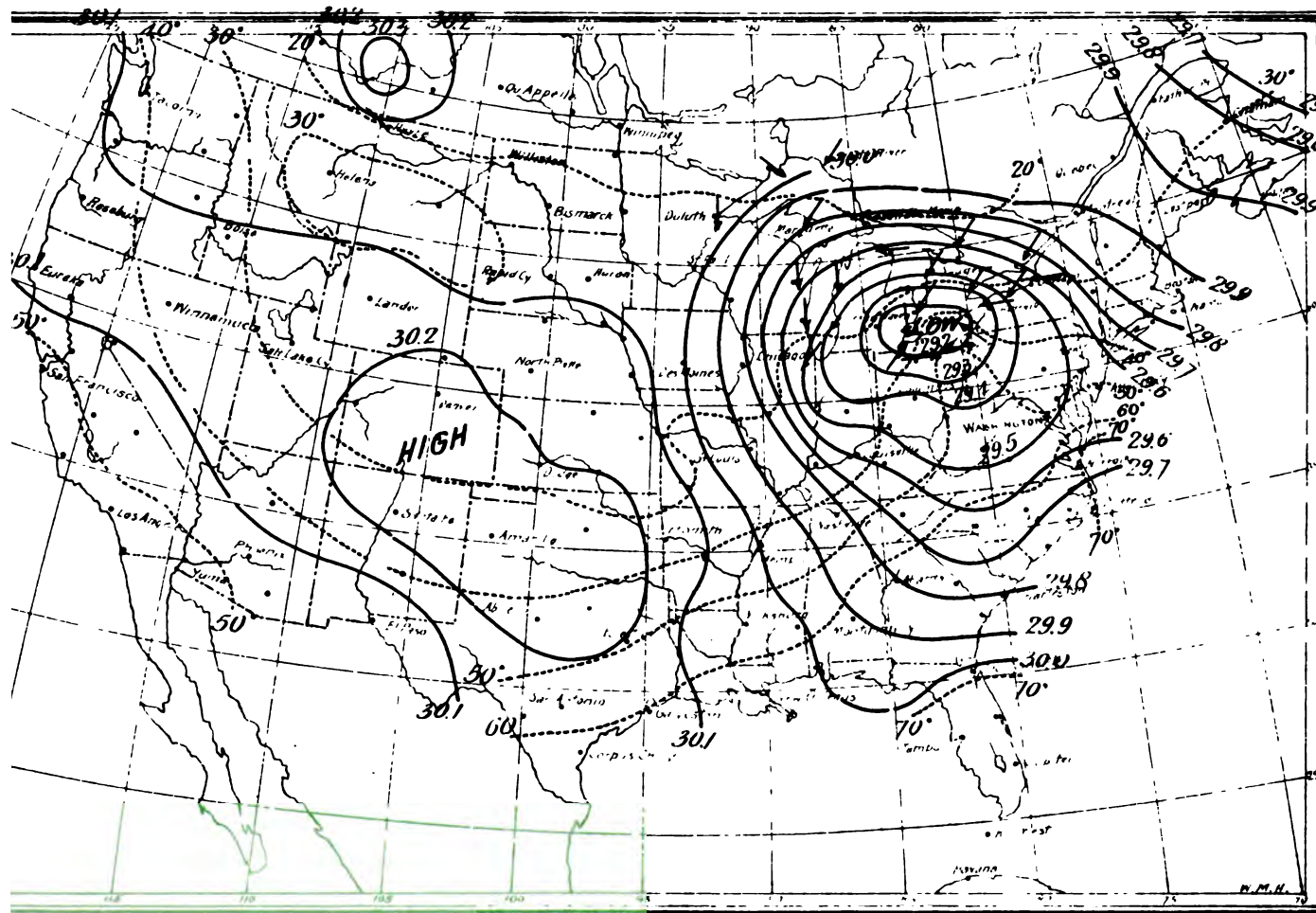


Chart OLXXXV.

March 2, 1891—8 p. m.

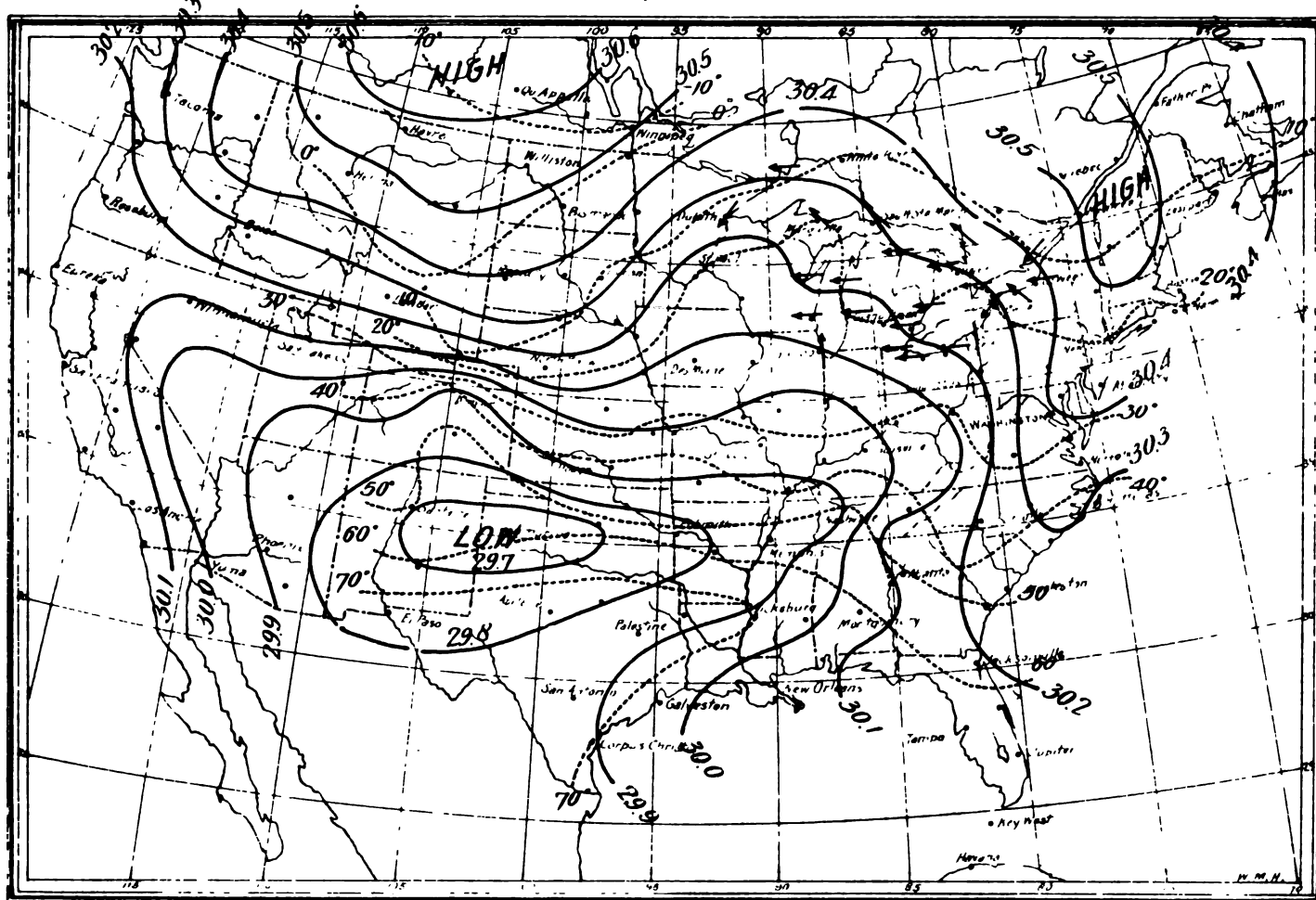


Chart OLXXXVI.

March 3, 1891—8 a. m.

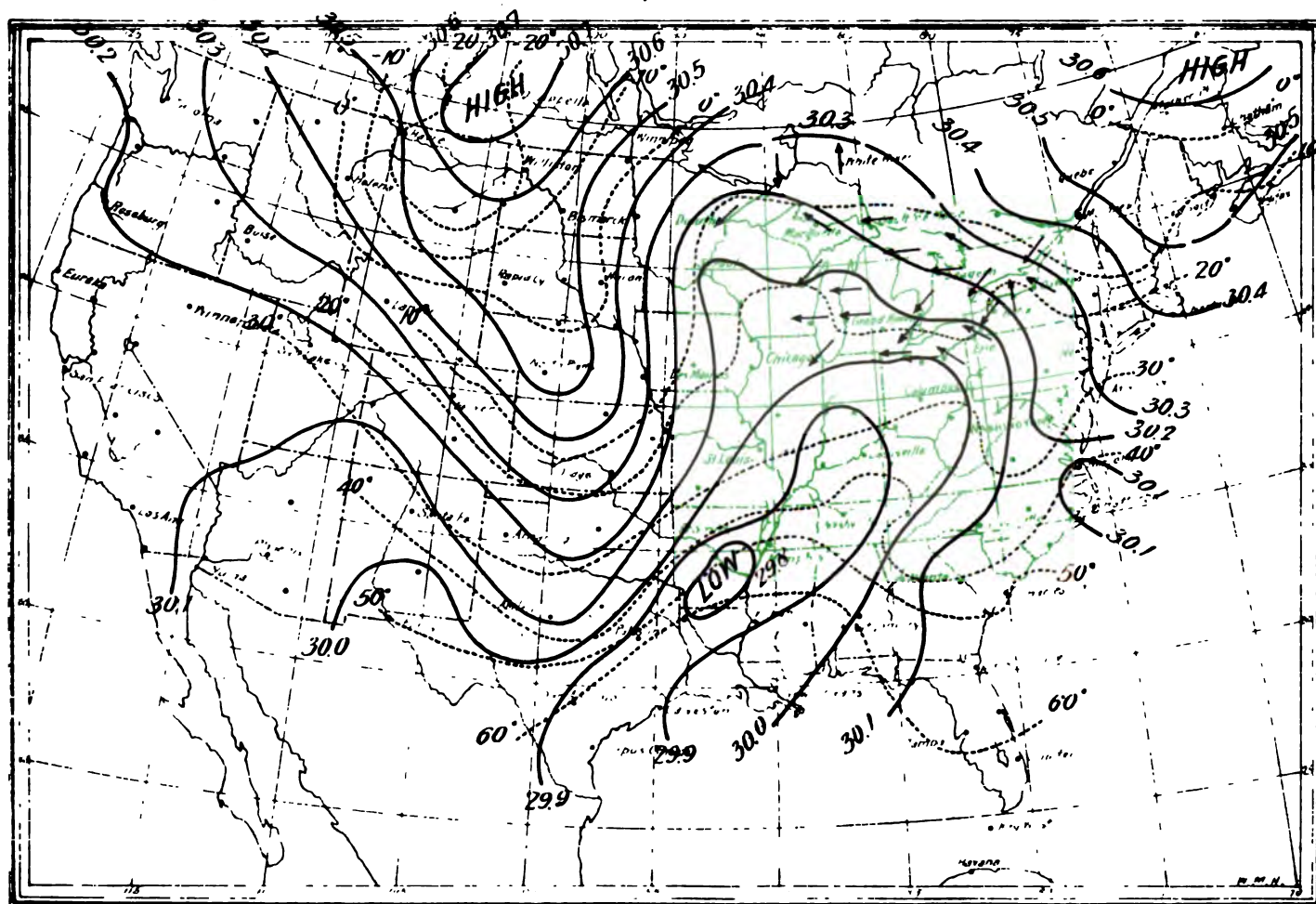


Chart OLXXXVII.

March 3, 1891—8 p. m.

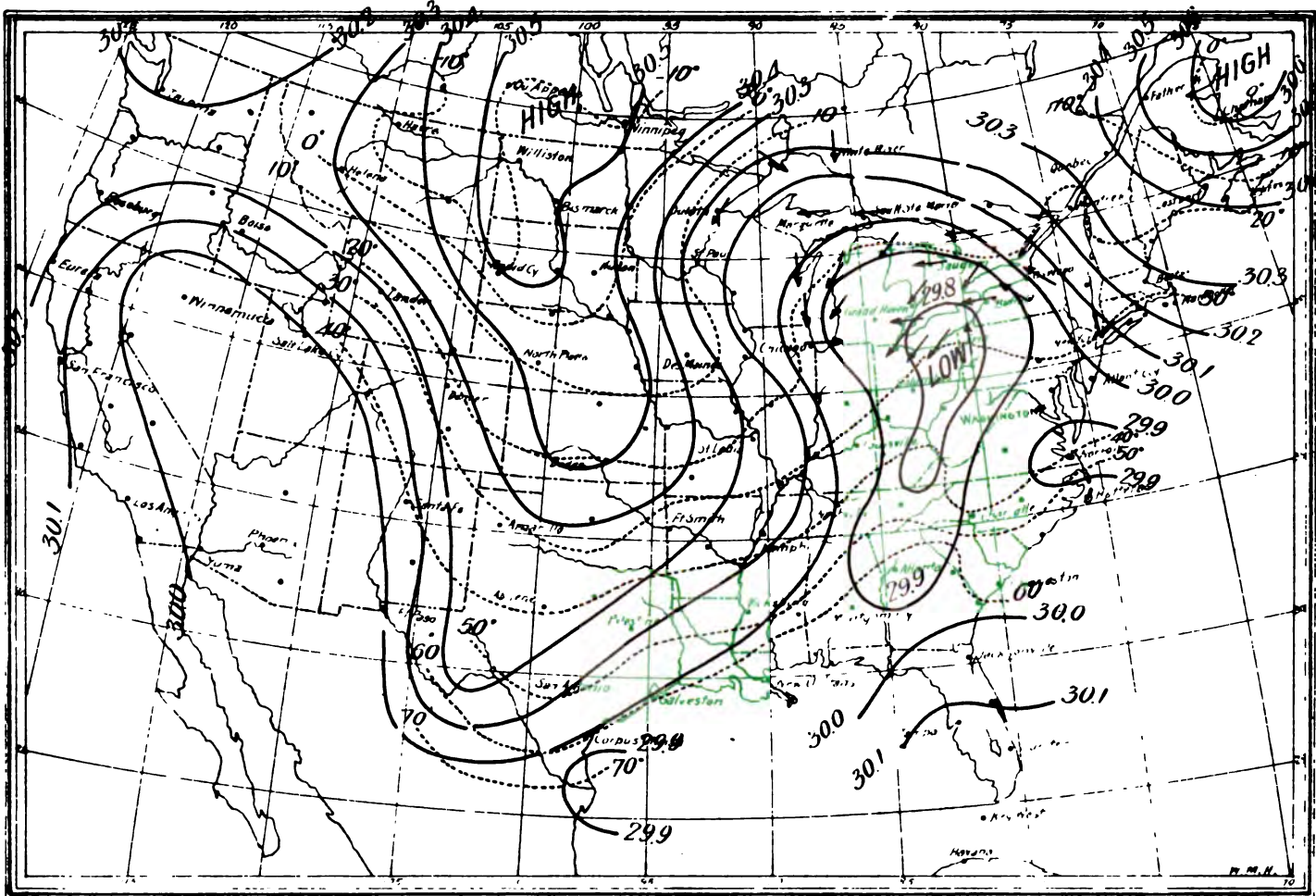


Chart OLXXXVIII.

March 4, 1891—8 a. m.

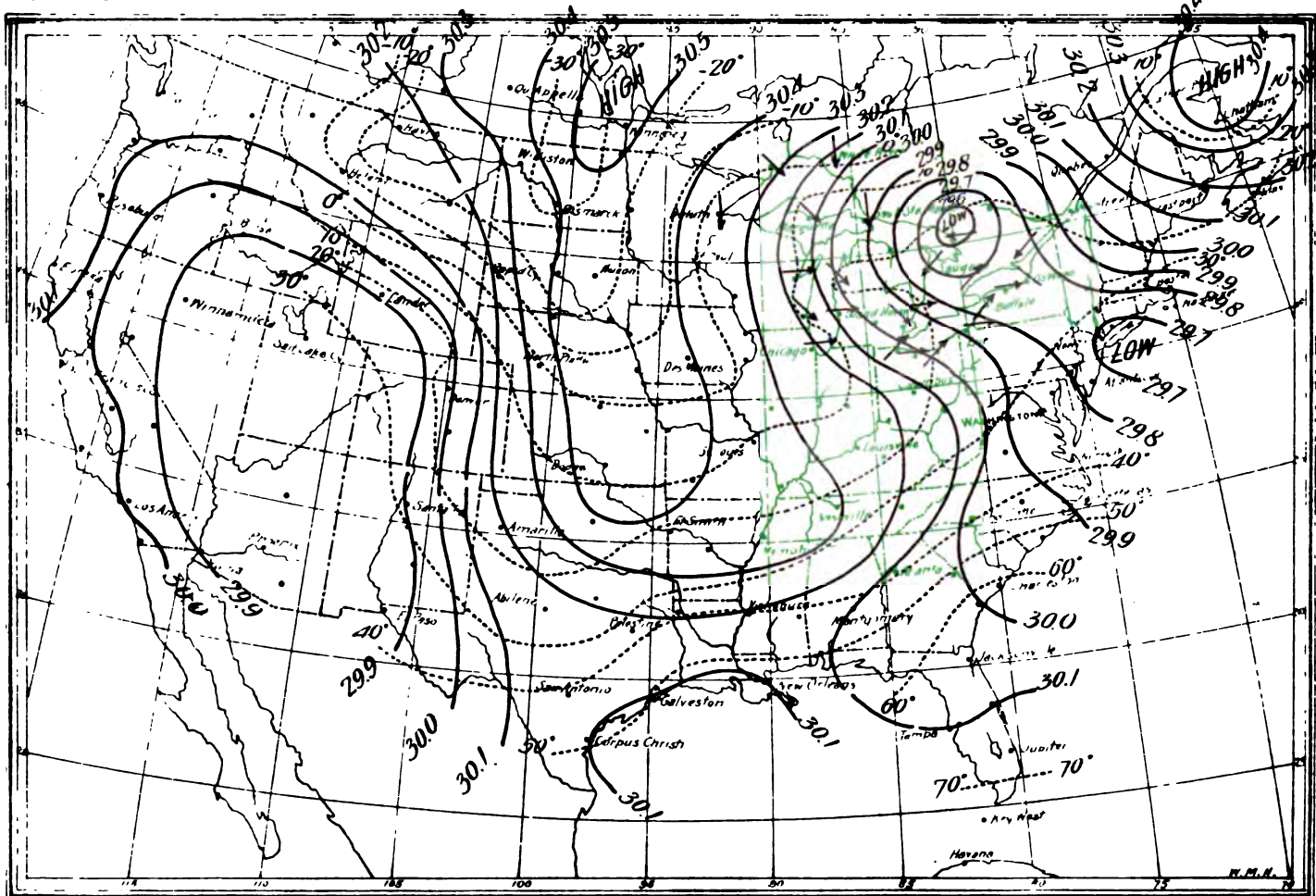


Chart OLXXXIX.

March 10, 1893—8 a. m.

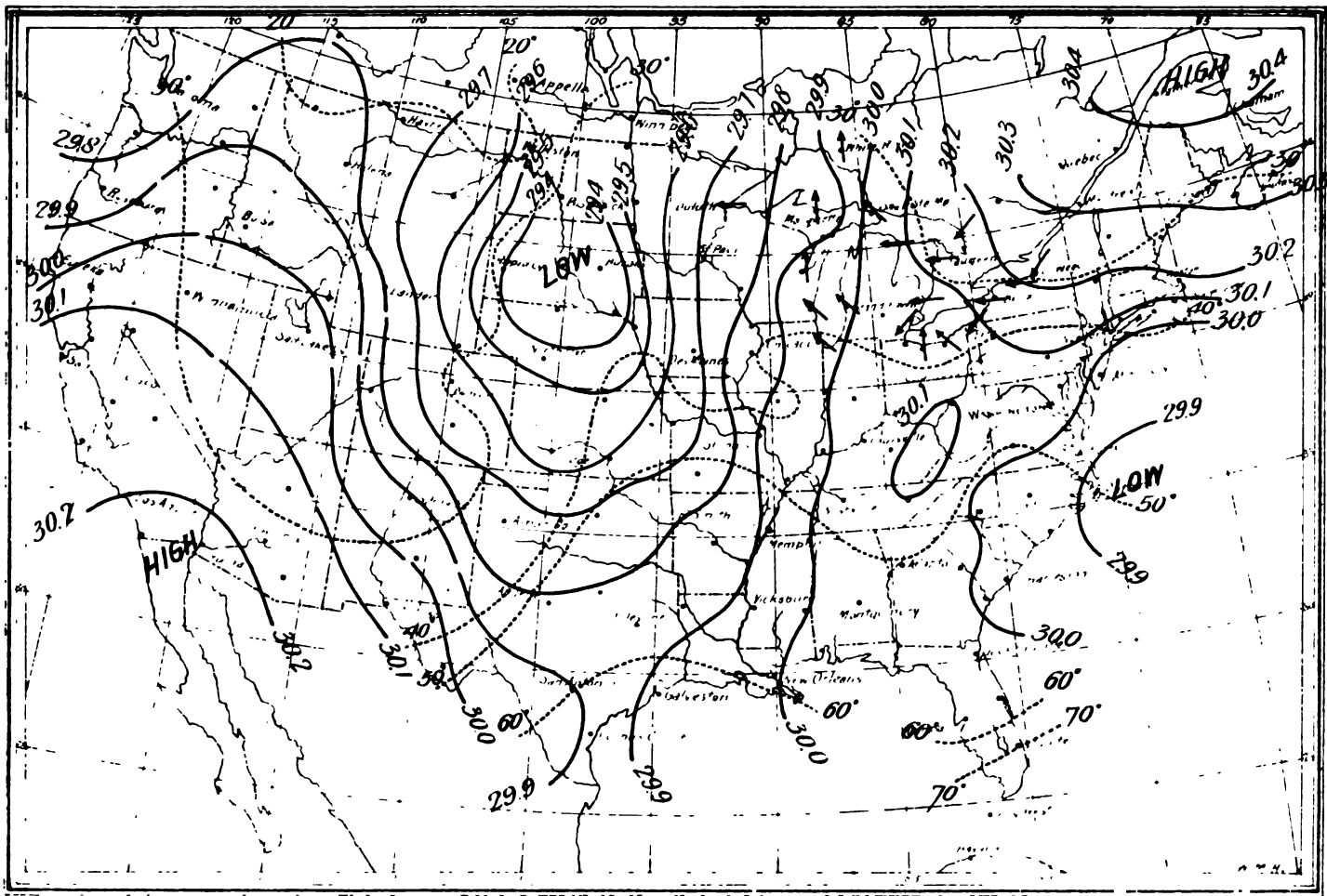


Chart OXC.

March 10, 1893—8 p. m.

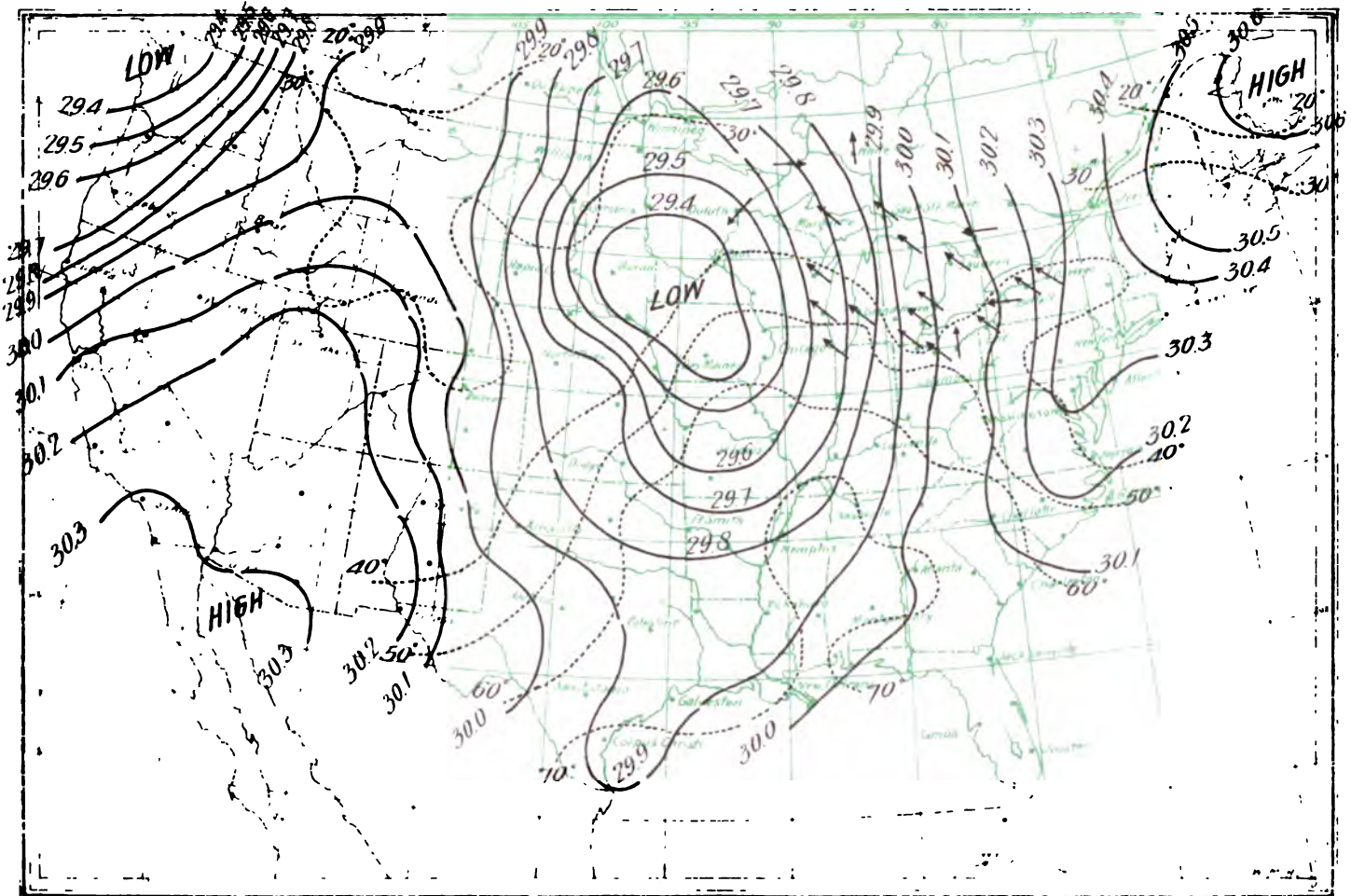


Chart OXOI.

March 11, 1898—8 a. m.

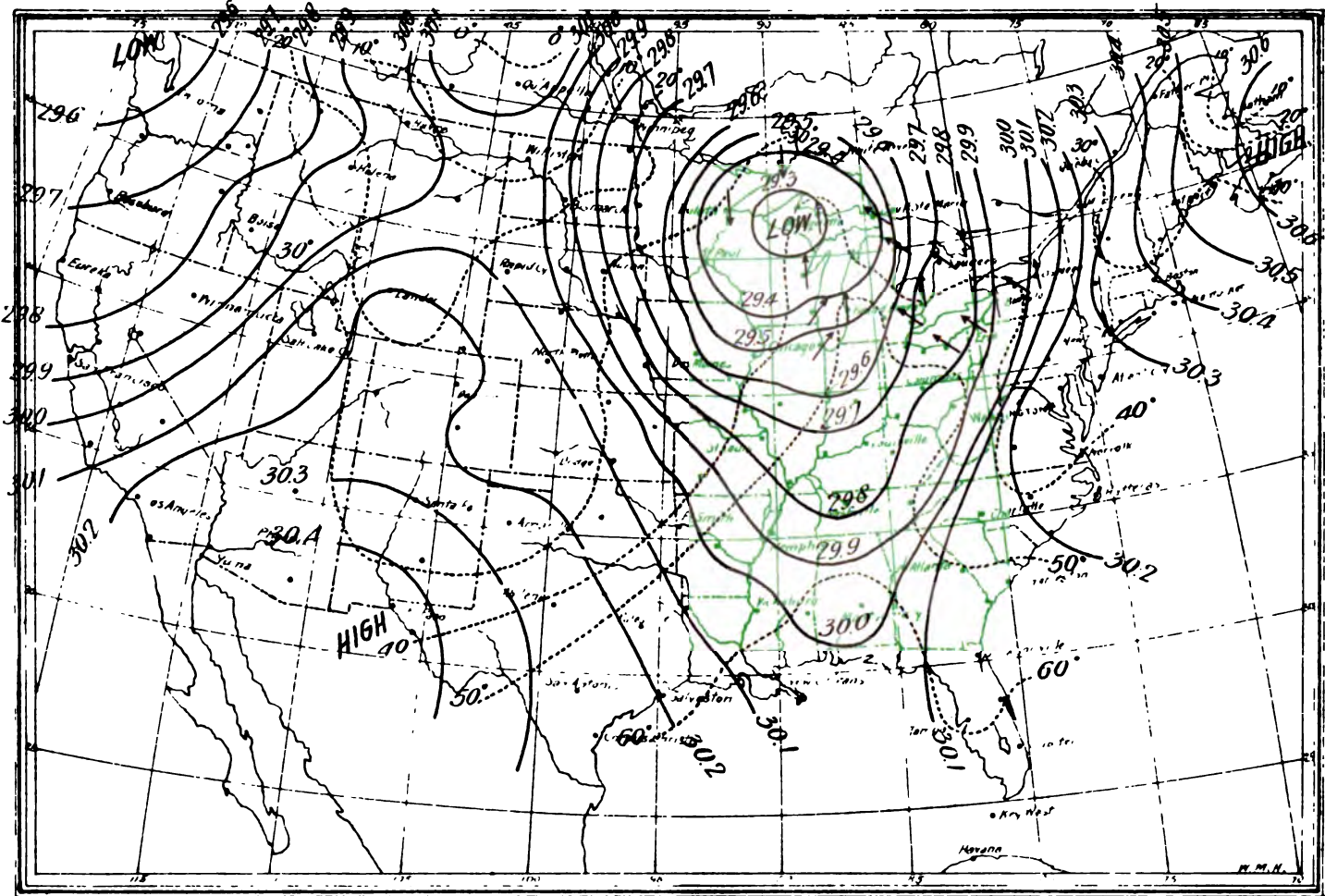
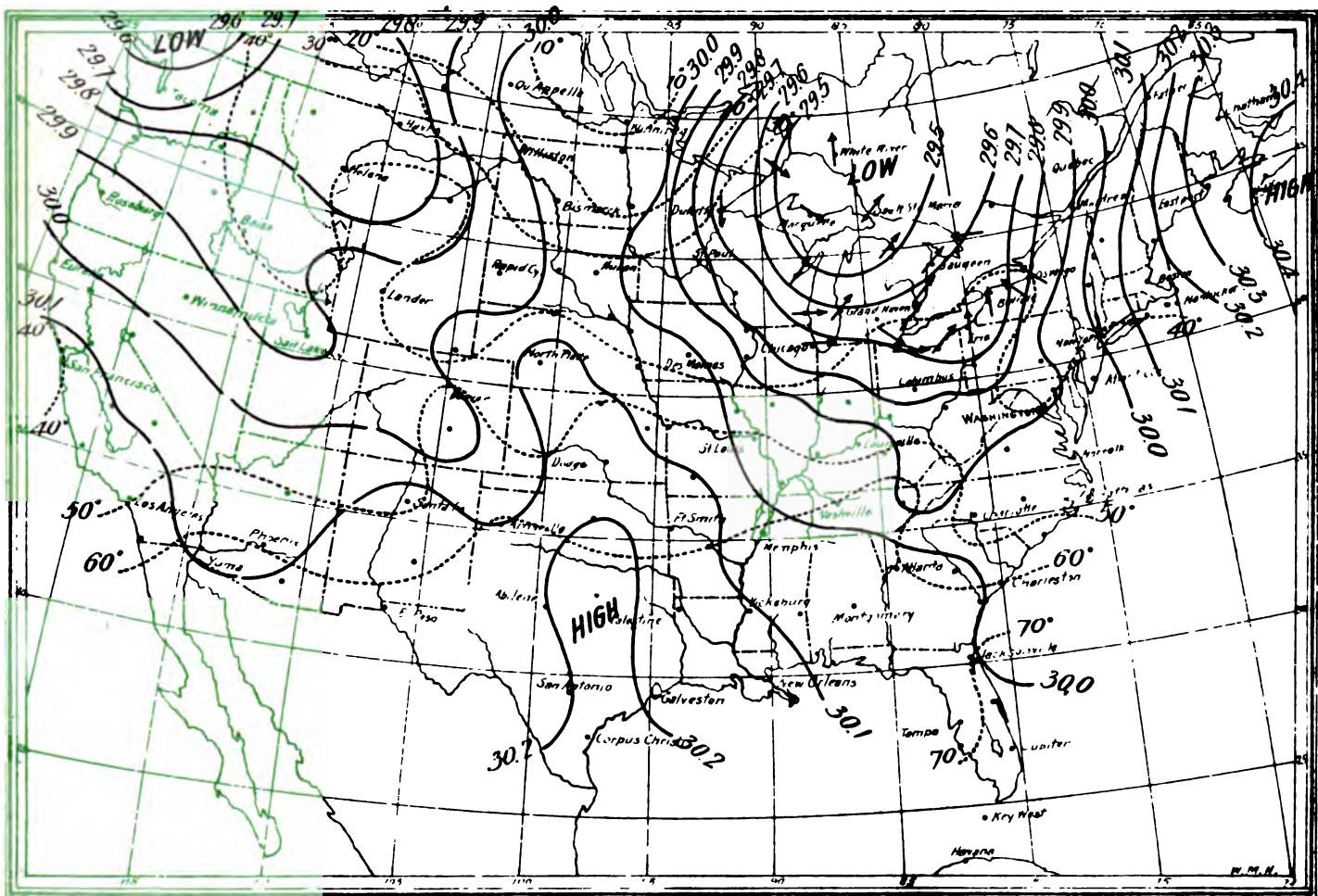


Chart OXOII.

March 11, 1898—8 p. m.



This is a detailed weather map of the North Atlantic region, showing pressure systems, isobars, and isotherms. The map includes the following features:

- Pressure Systems:**
 - A **LOW** pressure system is centered over the British Isles, with a central pressure of 29.5.
 - A **HIGH** pressure system is located to the west, with a central pressure of 30.3.
 - Another **HIGH** pressure system is visible in the upper right corner.
- Isobars:** Solid lines represent isobars with values ranging from 29.6 to 30.3.
- Isotherms:** Dashed lines represent isotherms for 10°C, 20°C, and 30°C.
- Geographic Labels:** The map includes latitude and longitude markings (e.g., 10°, 20°, 30°, 40°, 50° latitude and 10°, 20°, 30°, 40°, 50° longitude) and labels for major landmasses like "NORTH AMERICA" and "EUROPE".
- Other Features:** The map shows various weather symbols, including clouds, precipitation, and wind direction indicators.

March 10, 1894—8 p. m.

Chart OXOV.

March 11, 1894—8 a. m.

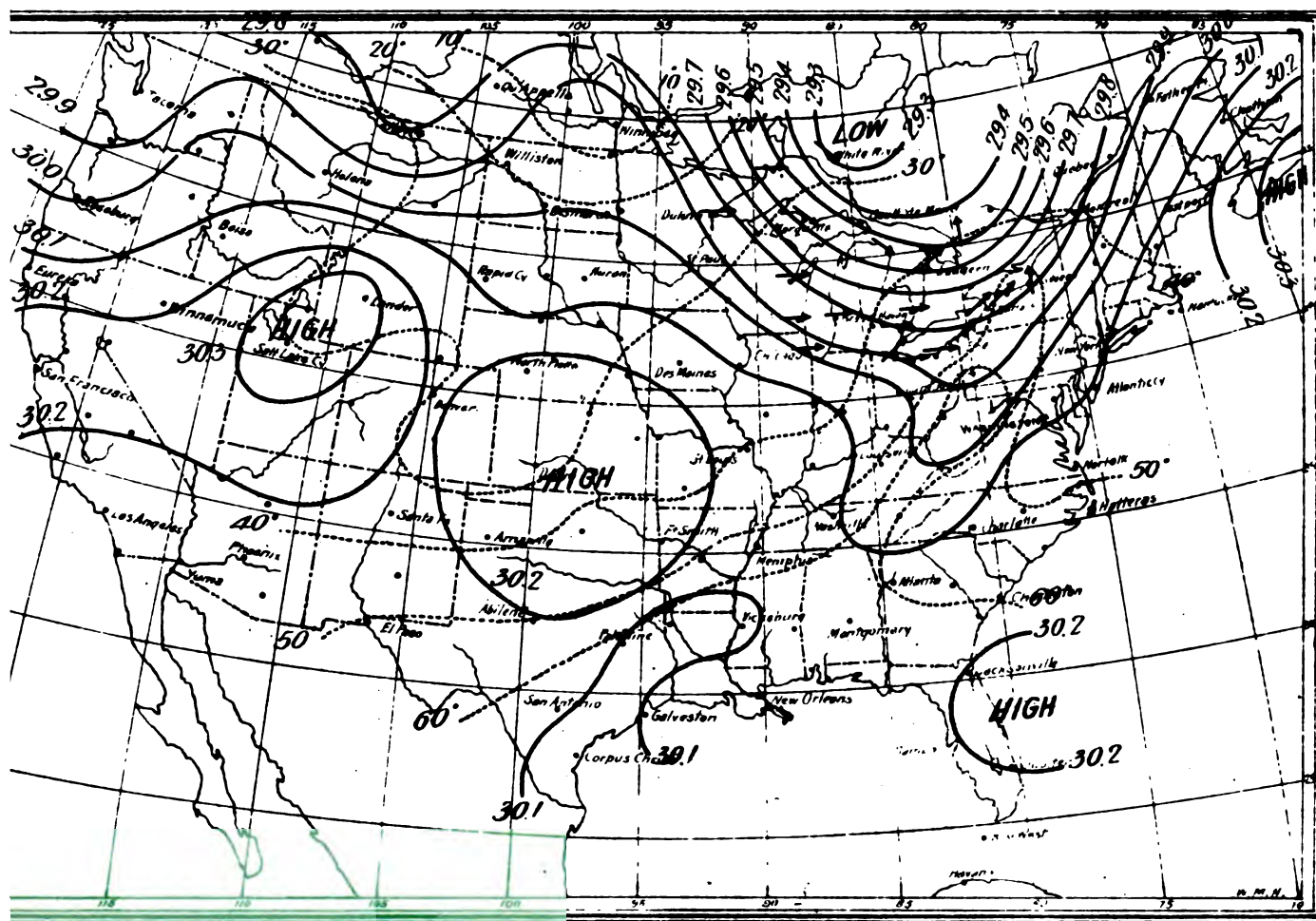


Chart OXOVI

March 11, 1894—8 p. m.

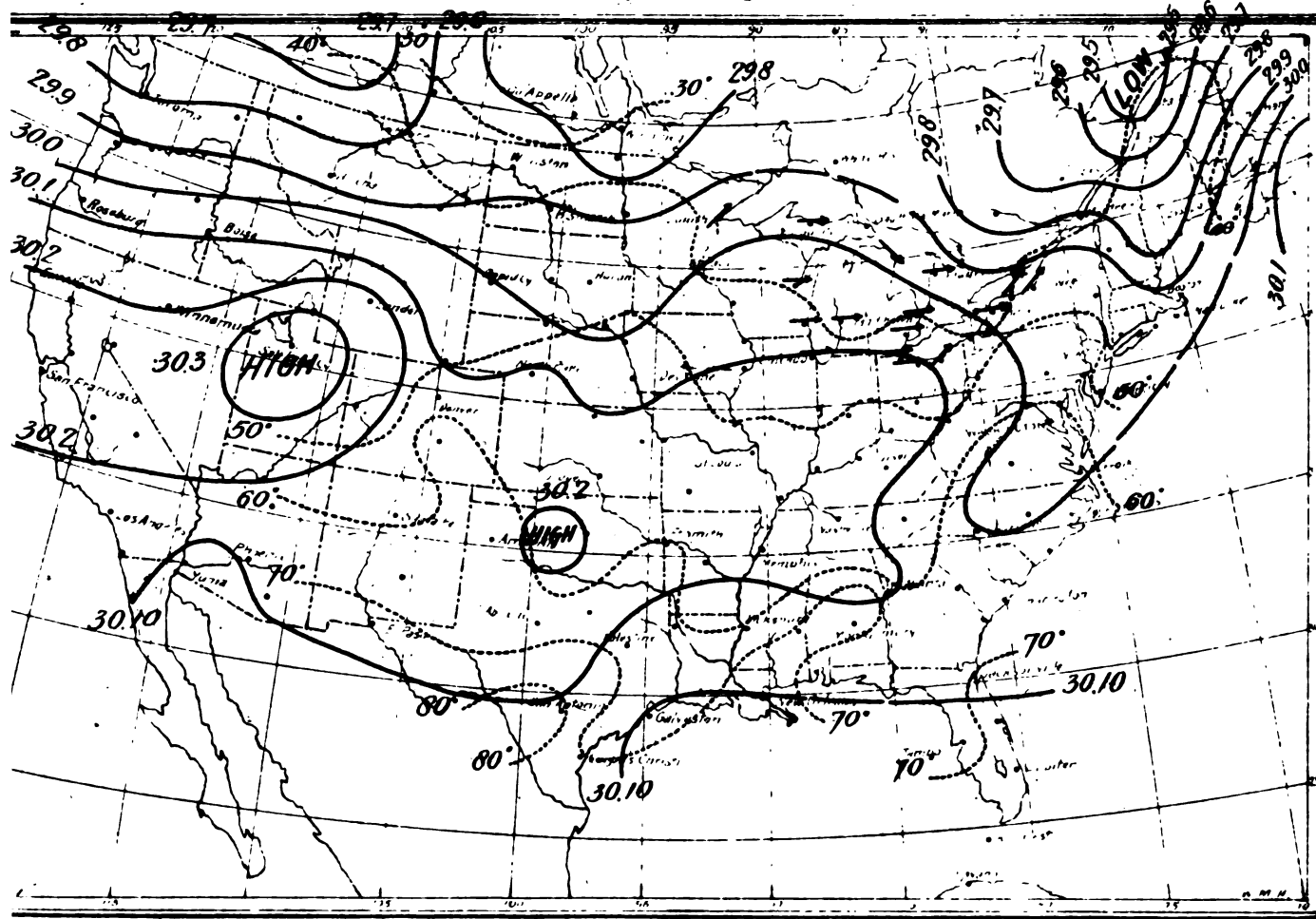


Chart OXOVII.

March 3, 1895—8 a. m.

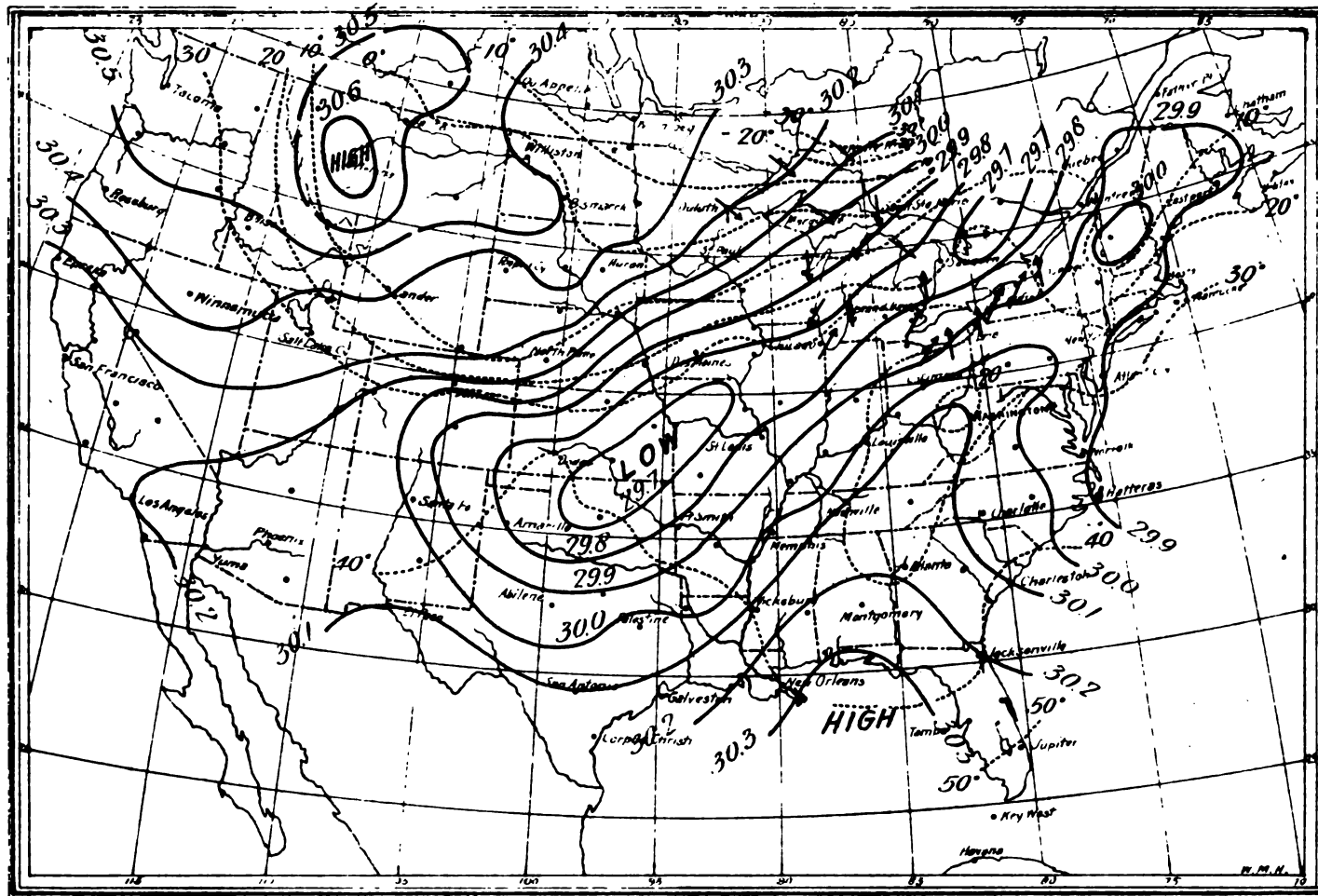


Chart OXOVIII.

March 3, 1895—8 p. m.

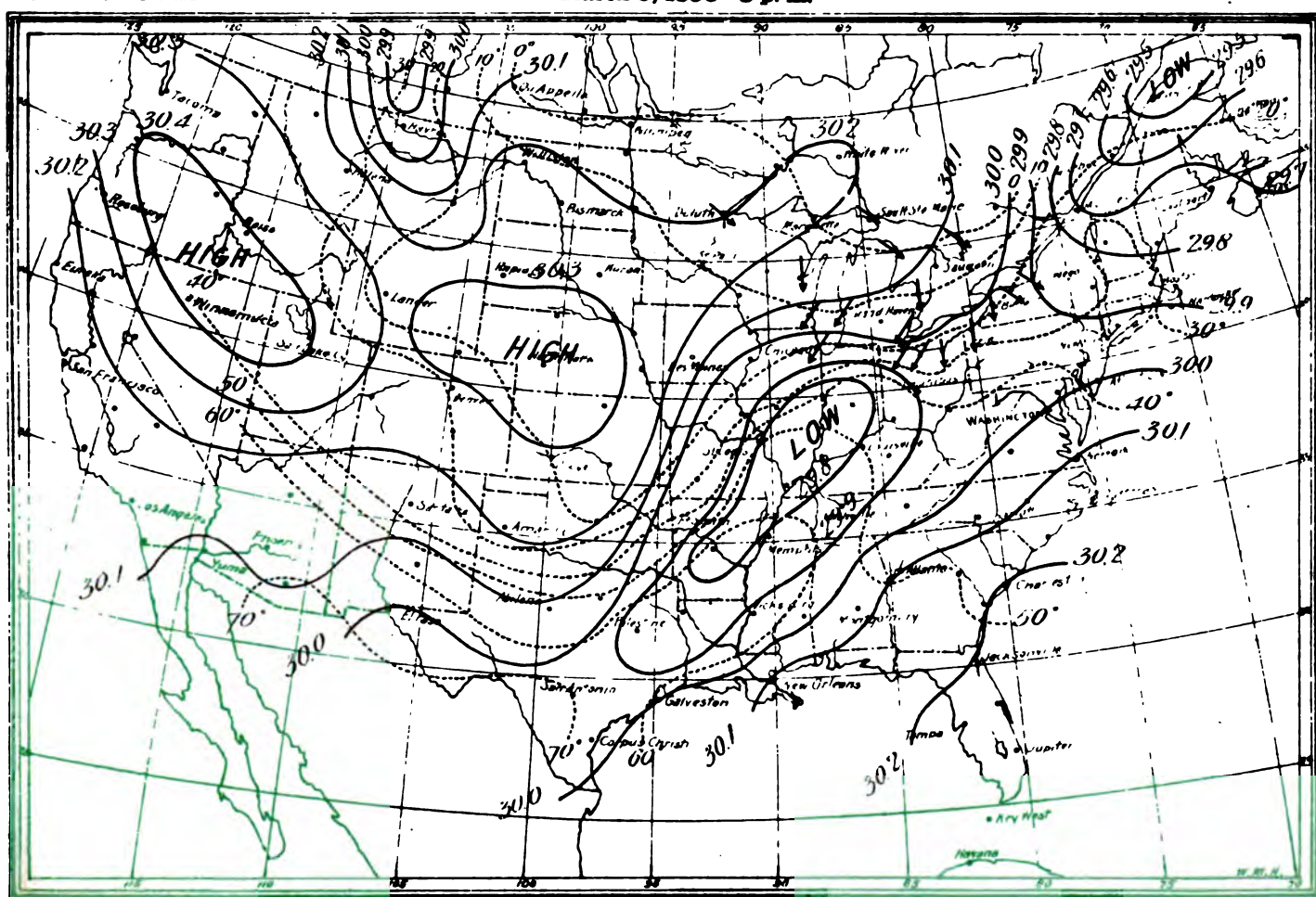


Chart OXCIX.

March 4, 1895—8 a. m.

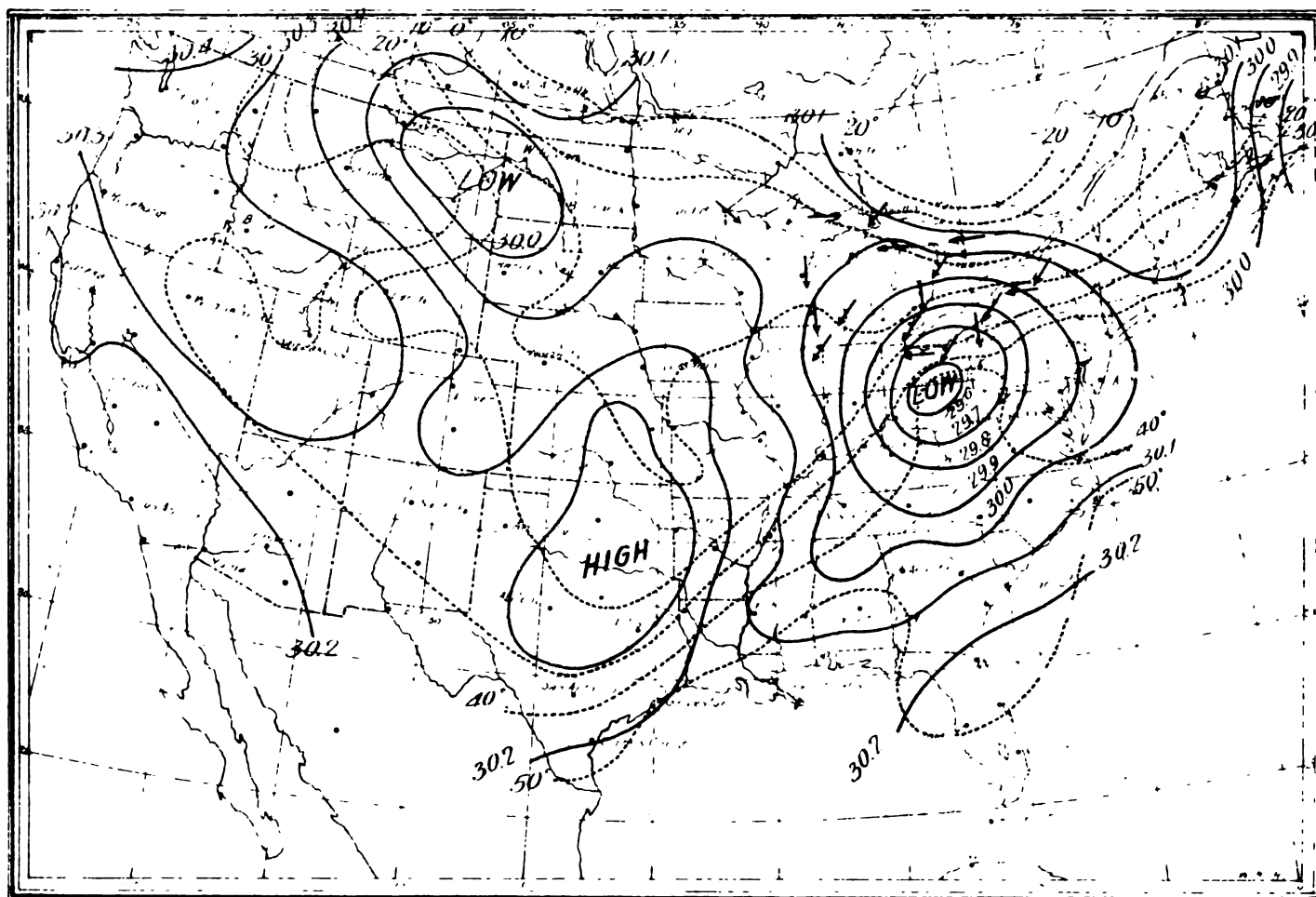


Chart OO.

March 4, 1895—8 p. m.

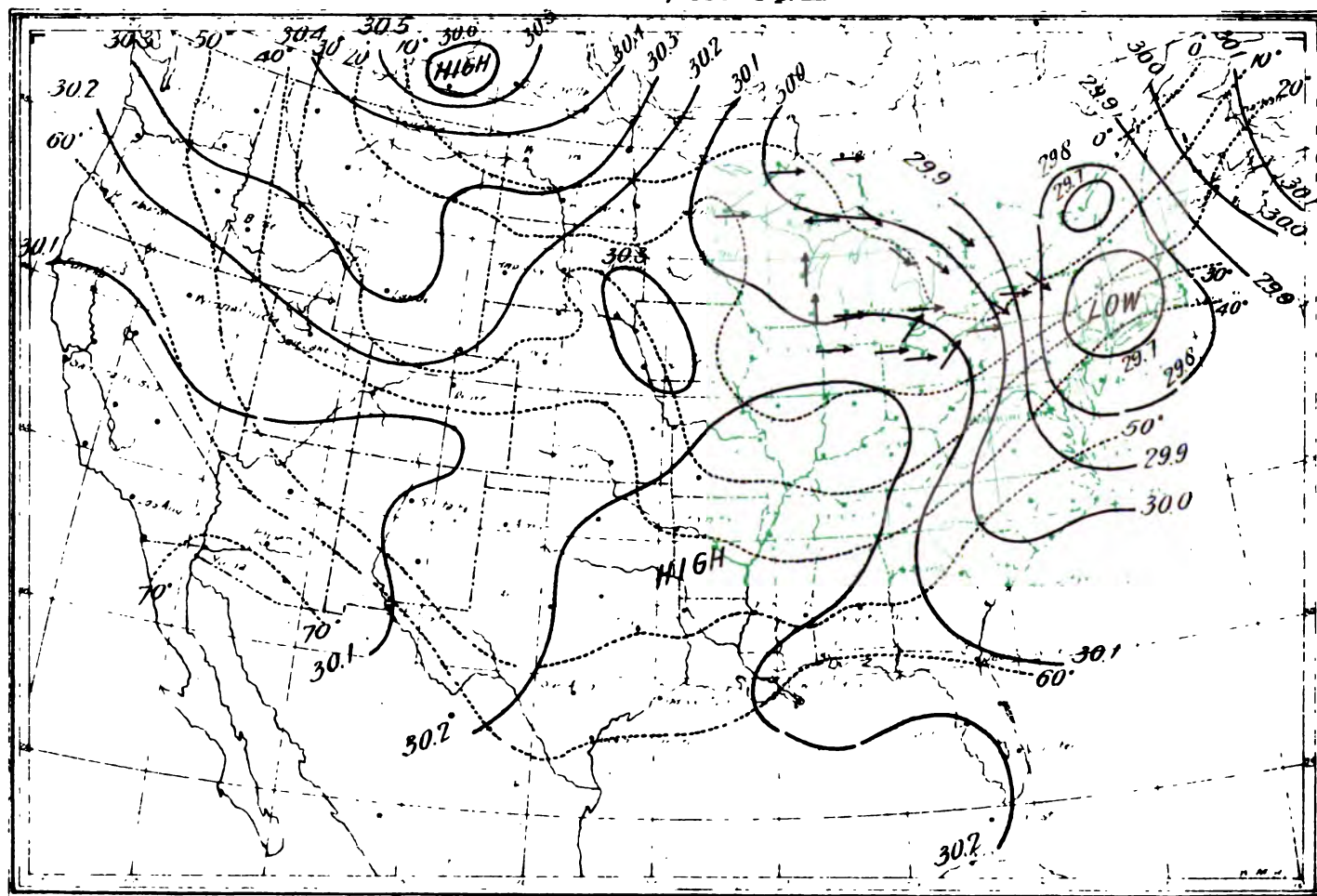


Chart OCL

March 27, 1896—8 p. m.

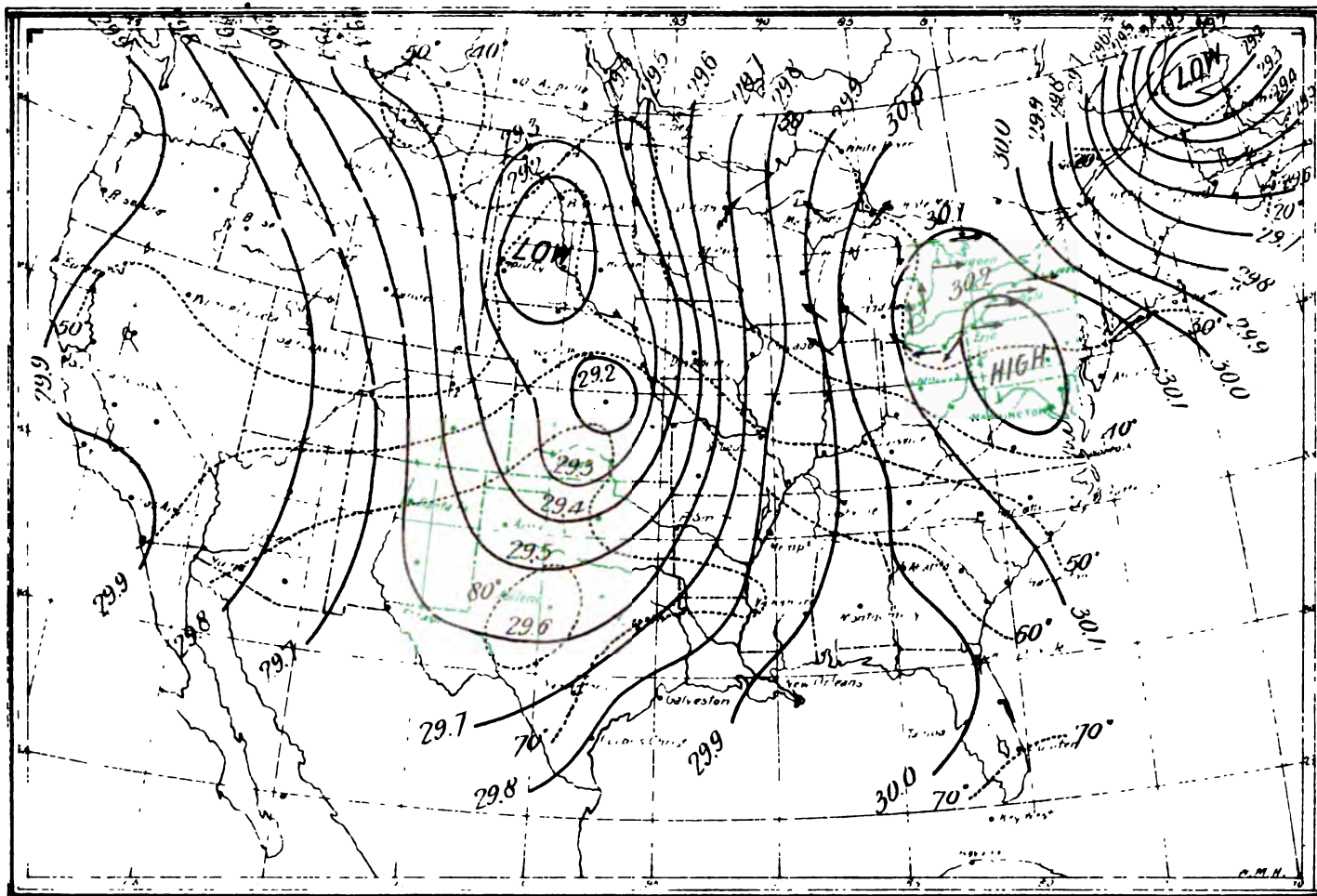


Chart OCL

March 28, 1896—8 a. m.

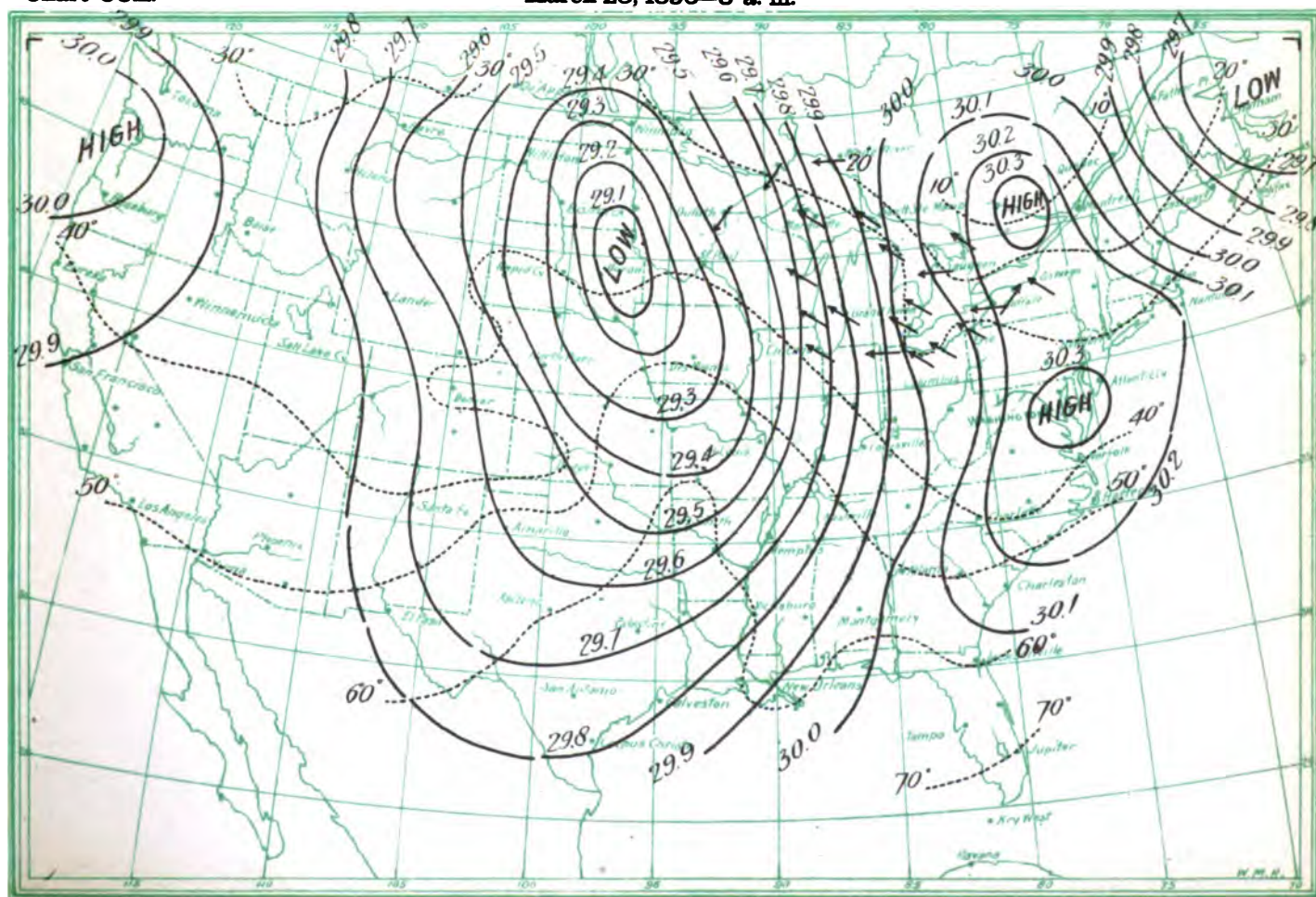


Chart CCM.

March 28, 1896—8 p. m.

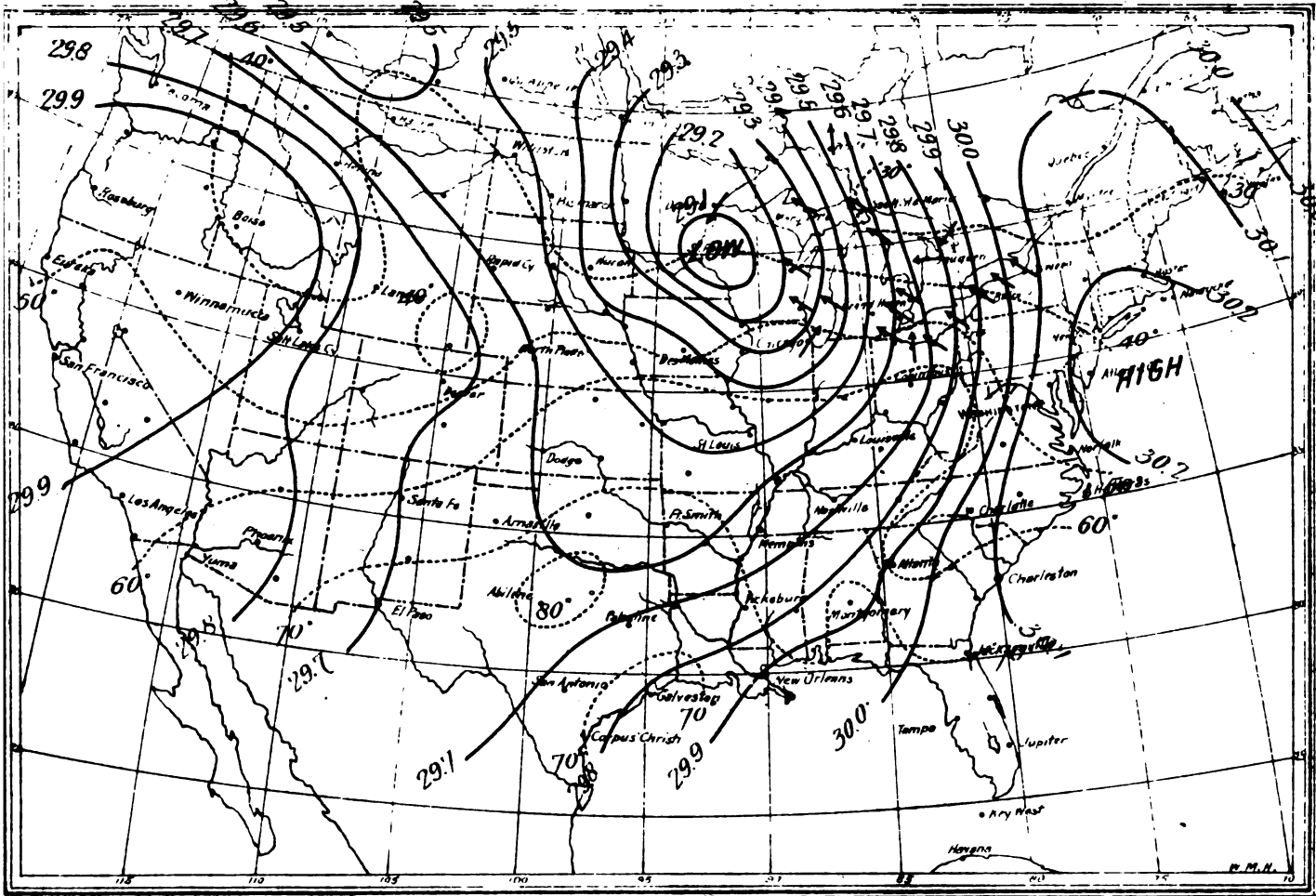


Chart CCMV.

March 29, 1896—8 a. m.

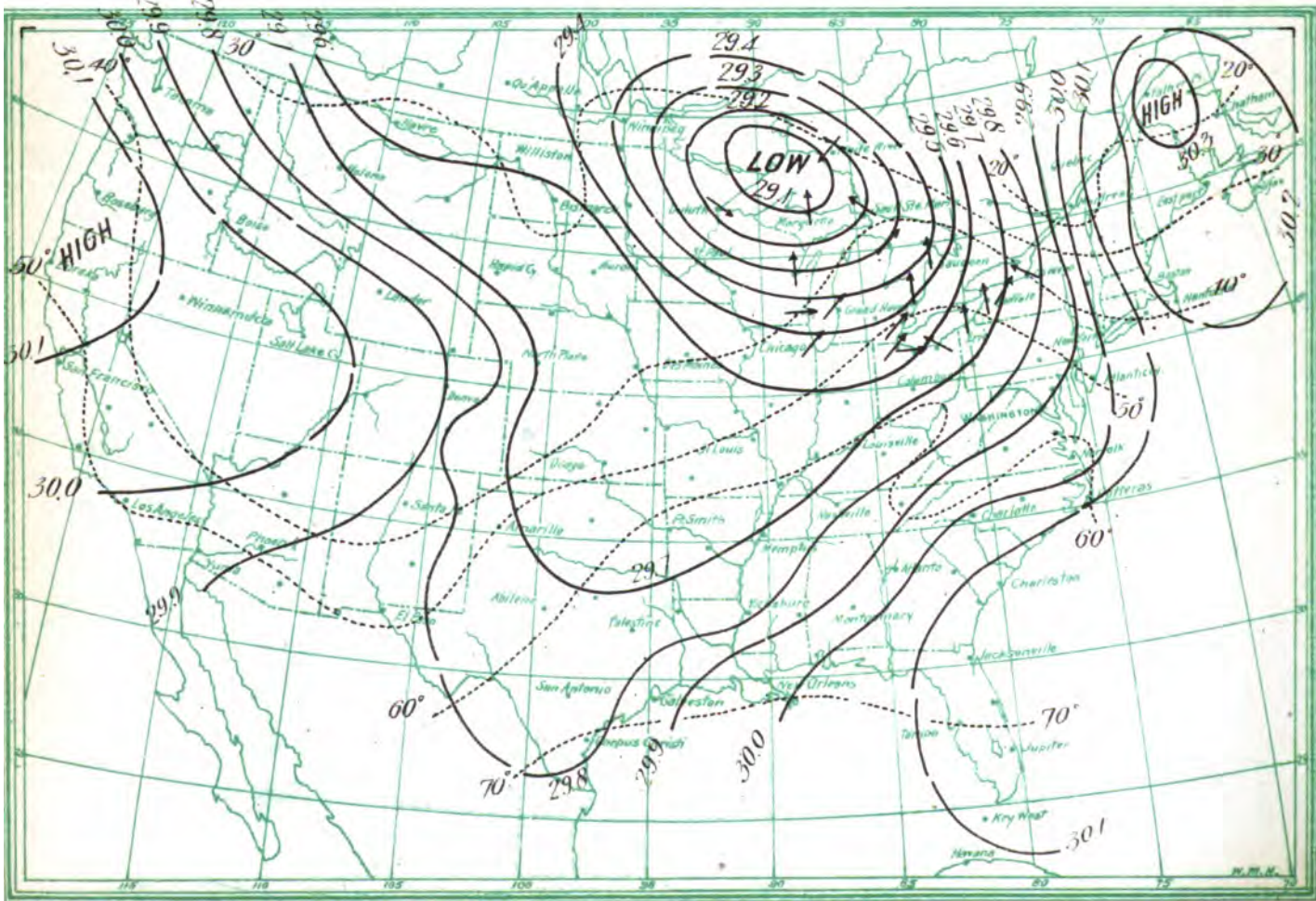


Chart CCOV.

March 8, 1897—8 a. m.

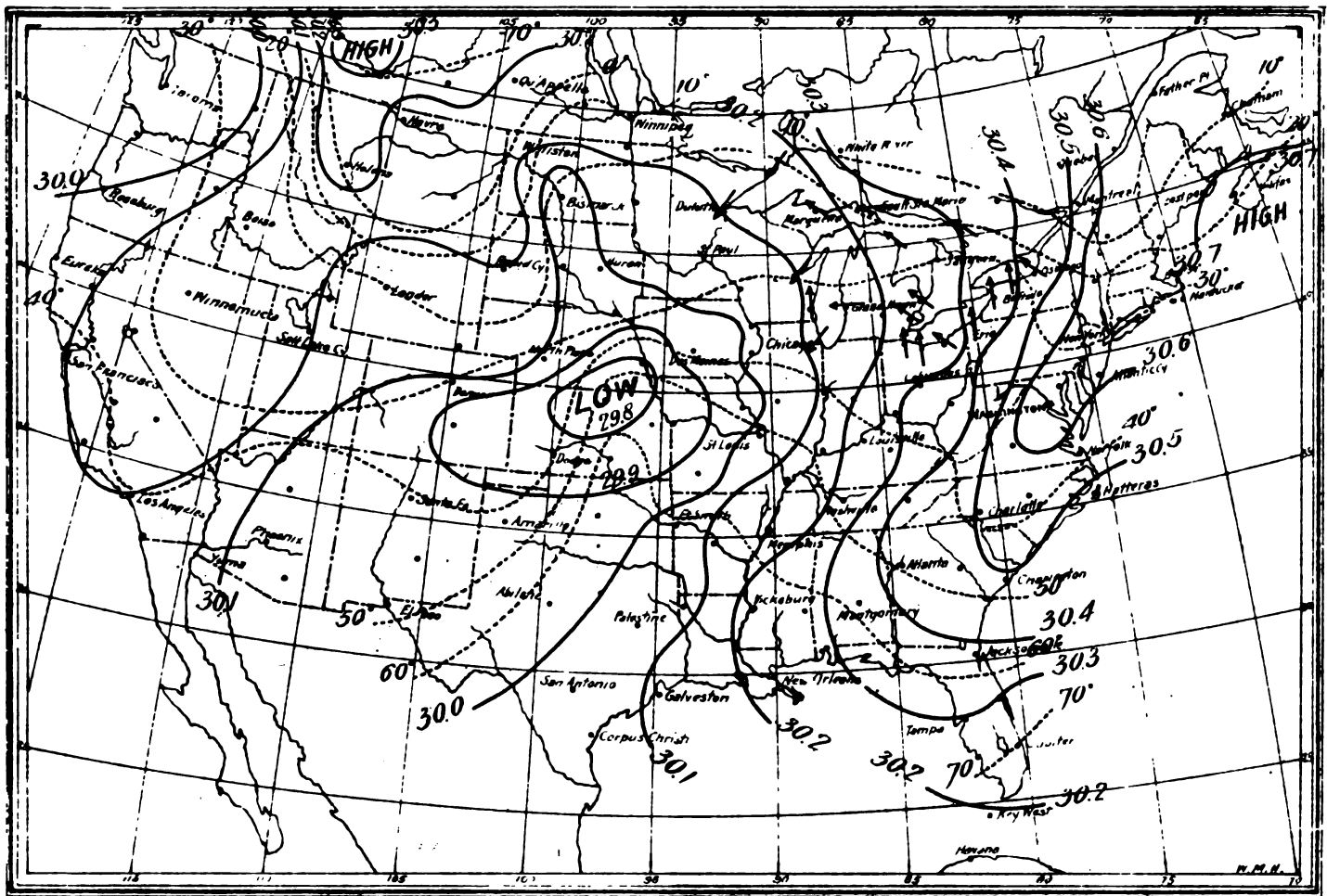


Chart CCOVI.

March 8, 1897—8 p. m.

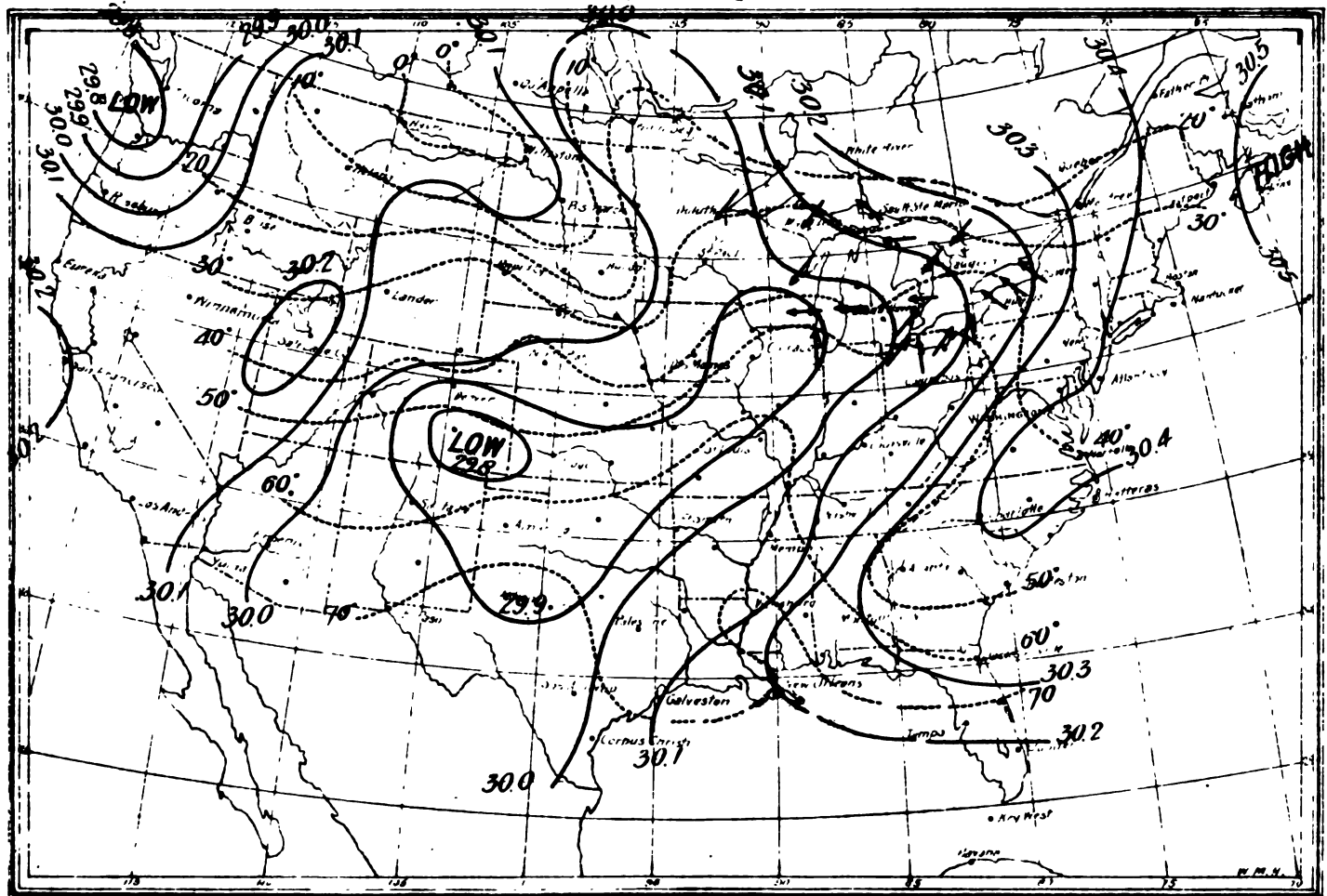


Chart COVII.

March 9, 1897—8 a. m.

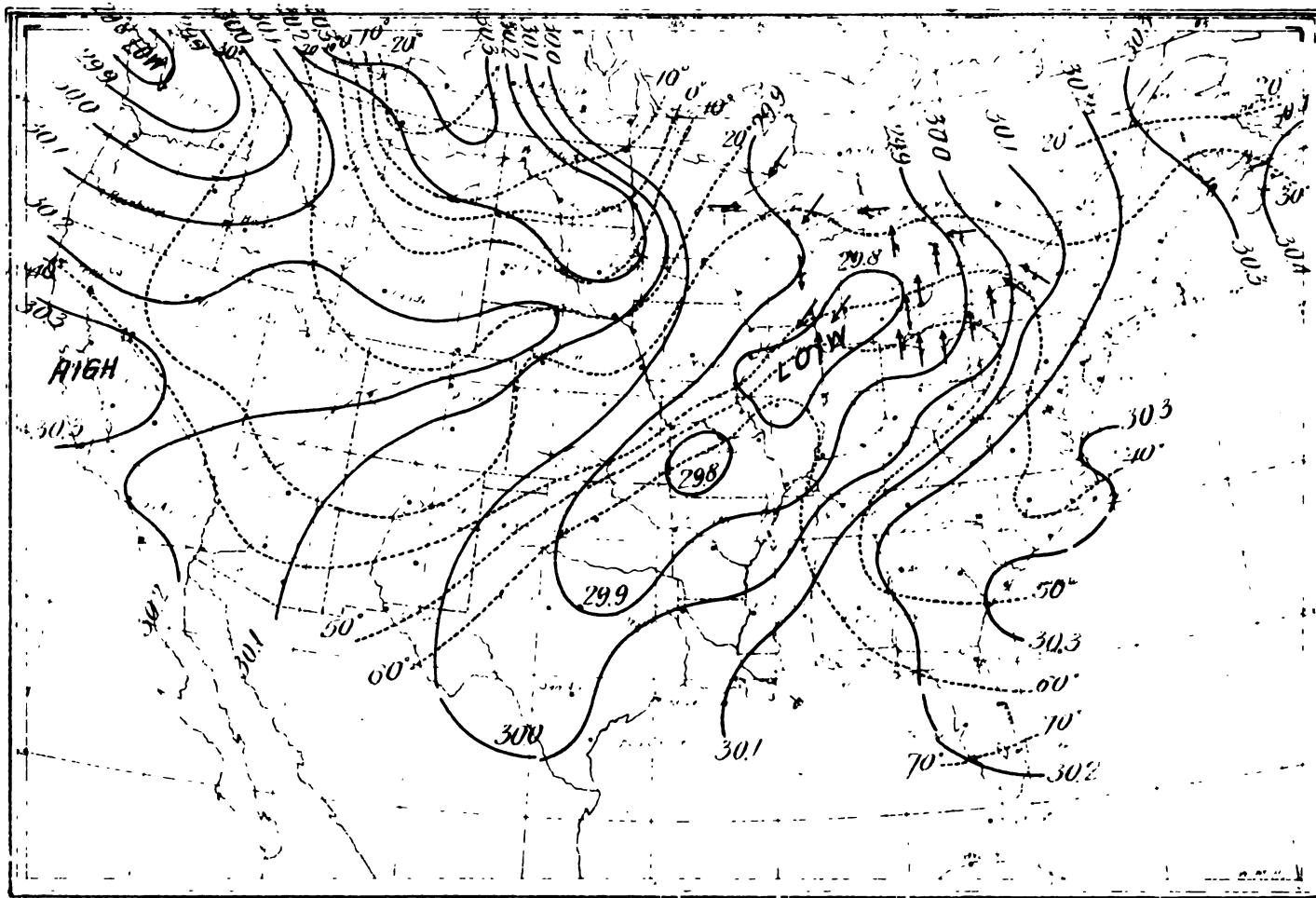


Chart COVIII.

March 9, 1897—8 p. m.

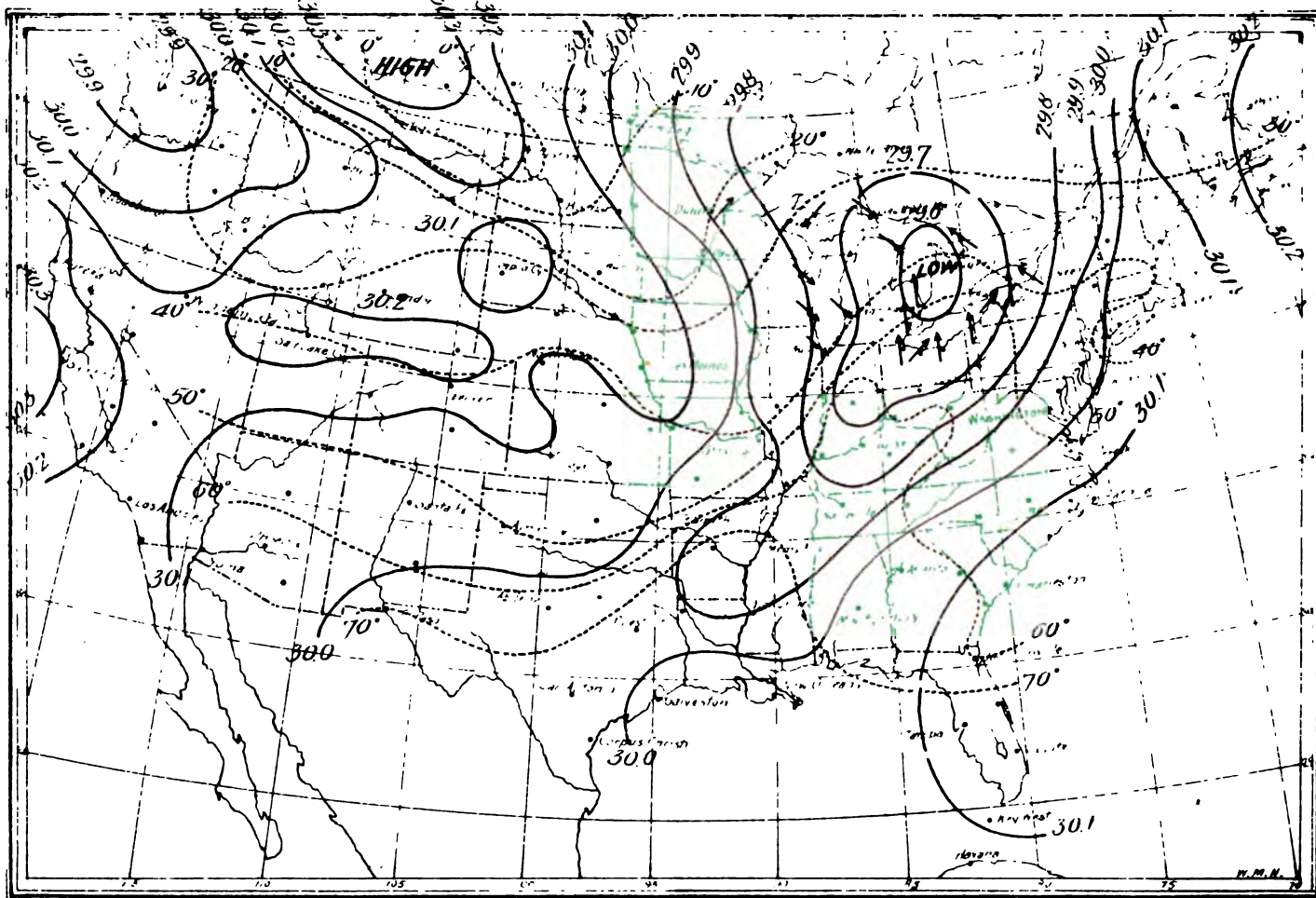


Chart COIX.

March 10, 1897—8 p. m.

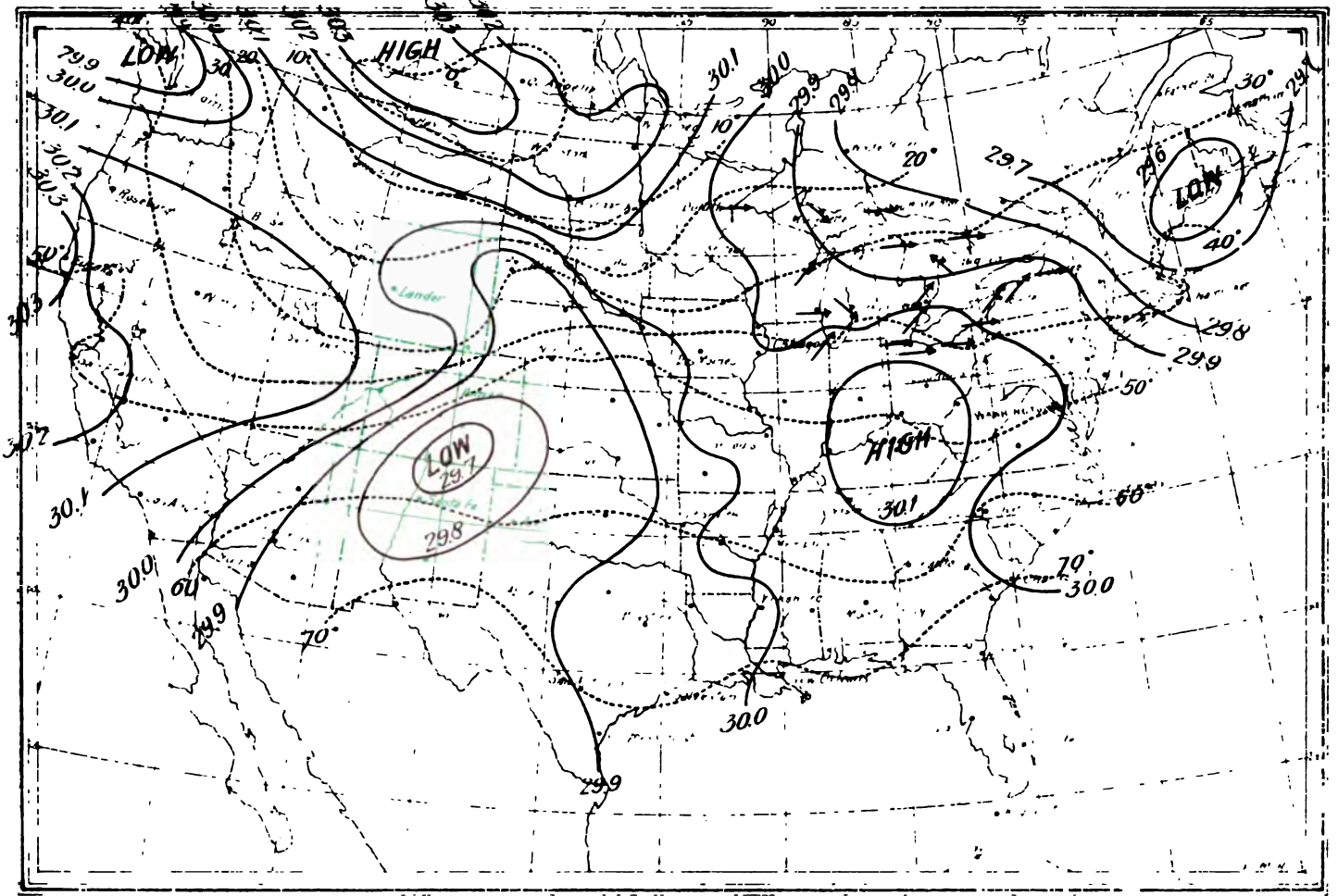


Chart COX.

March 11, 1897—8 a. m.

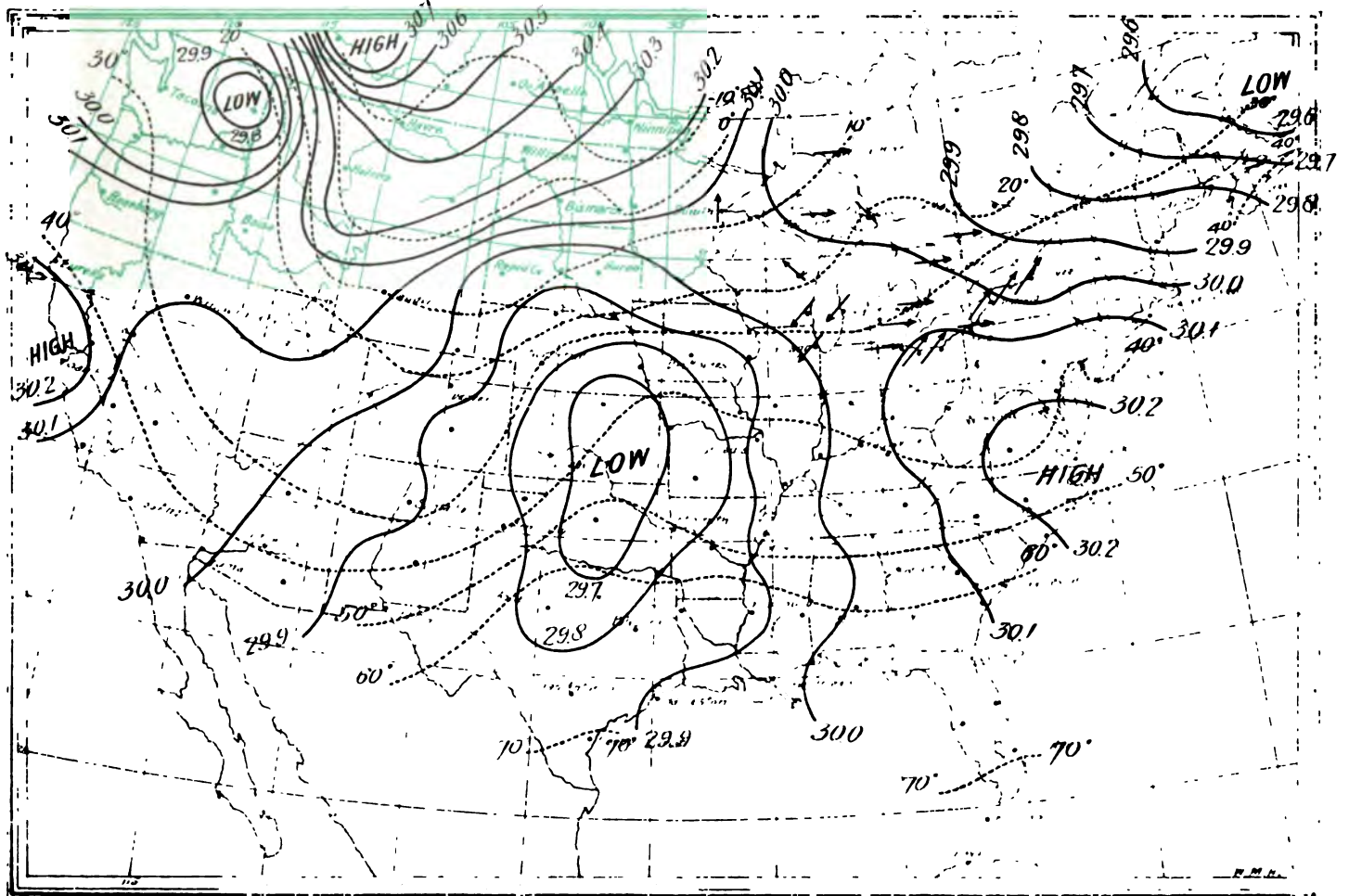


Chart CXXI.

March 11, 1897—8 p. m.

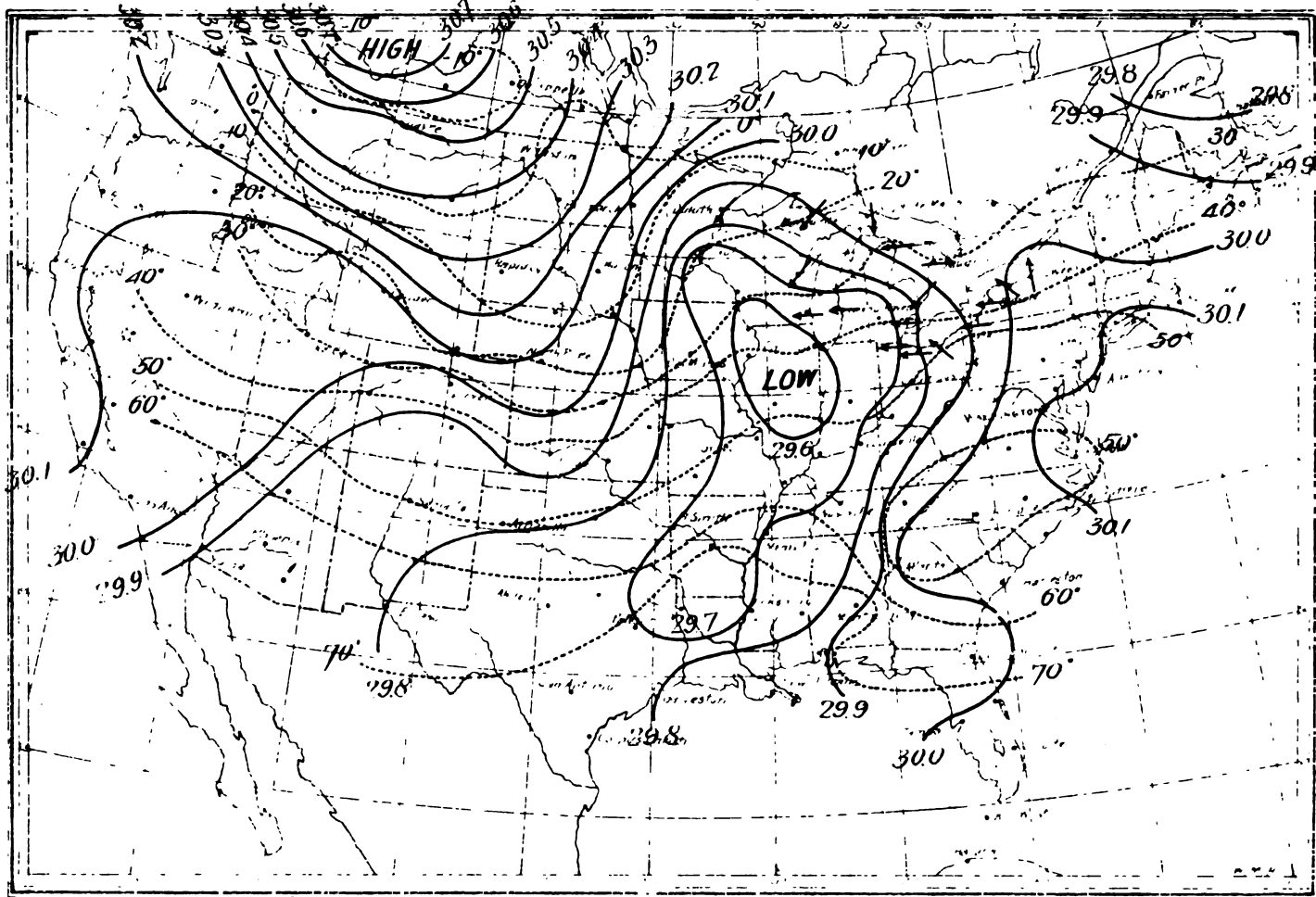


Chart CXXII.

March 12, 1897—8 a. m.

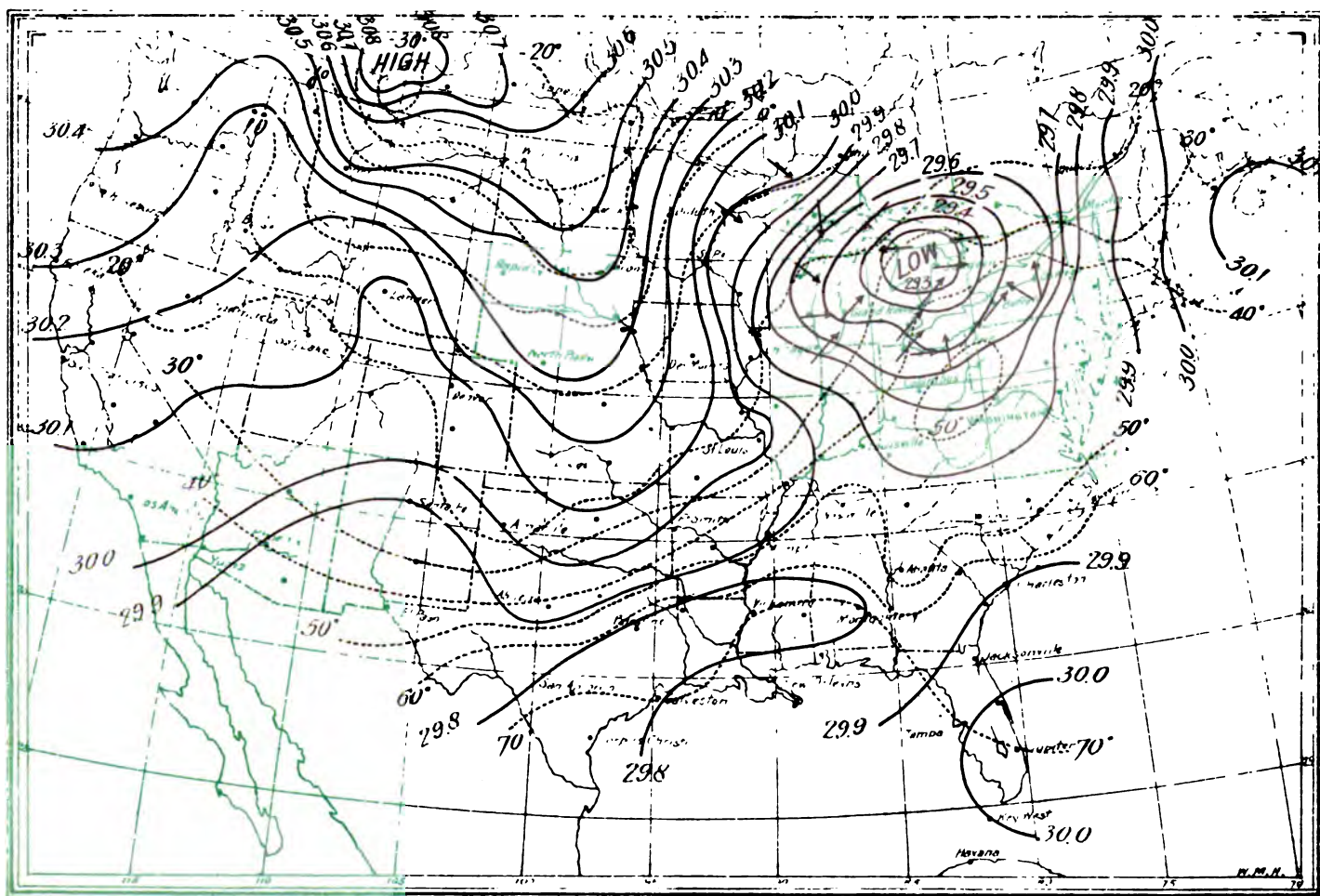


Chart CXXIII.

March 18, 1897—8 a. m.

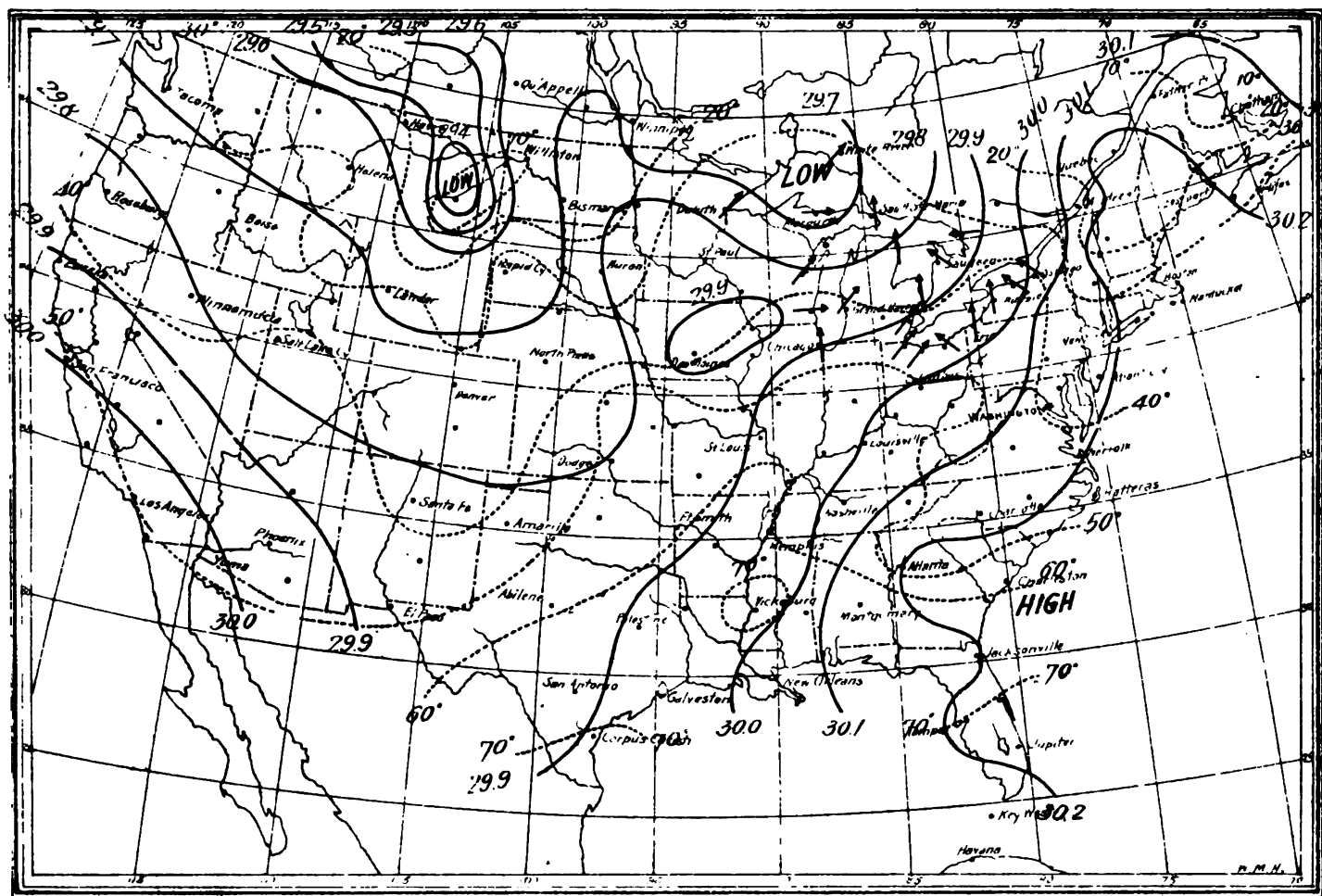


Chart CXXIV.

March 18, 1897—8 p. m.

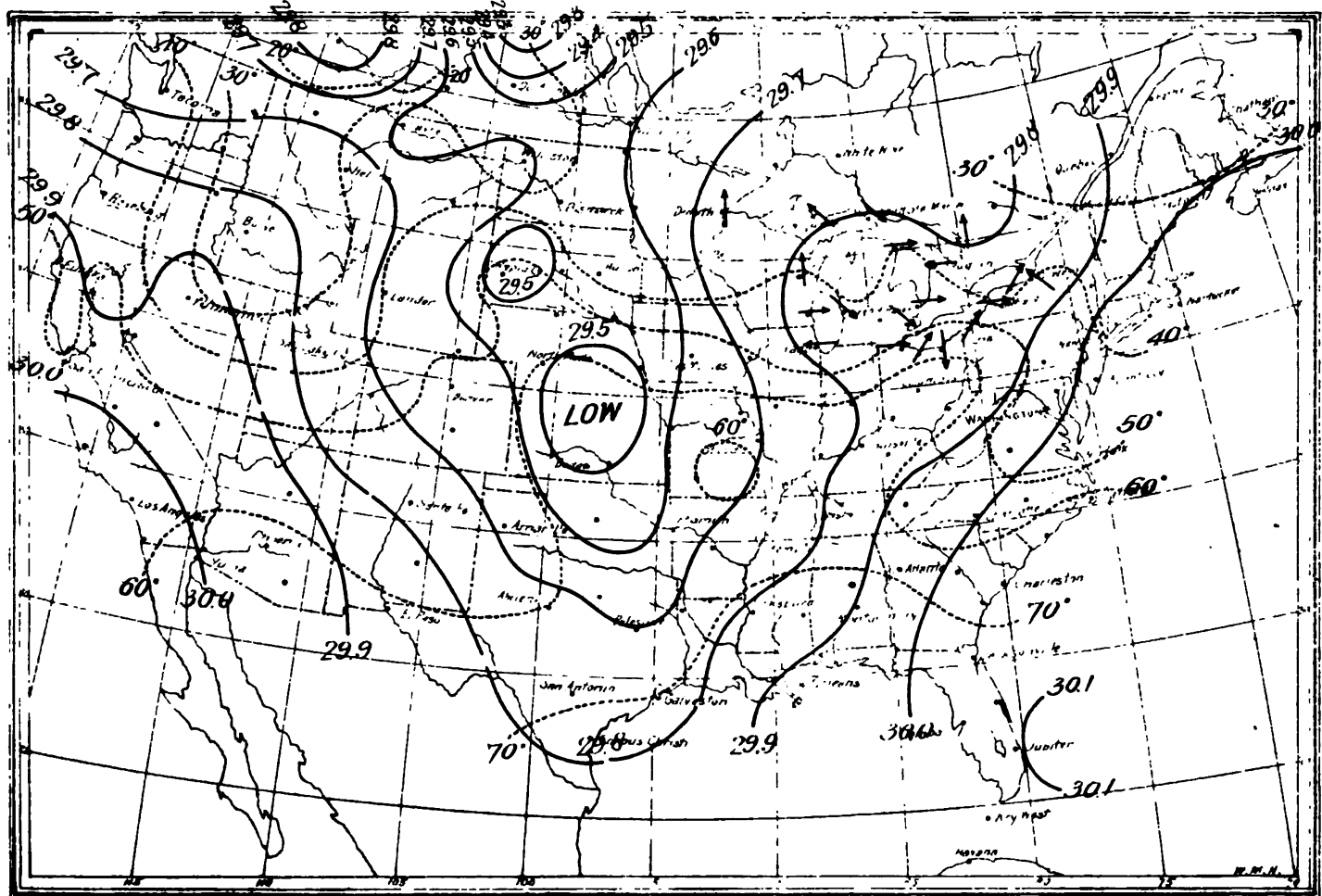


Chart CXXV.

March 19, 1897—8 a. m.

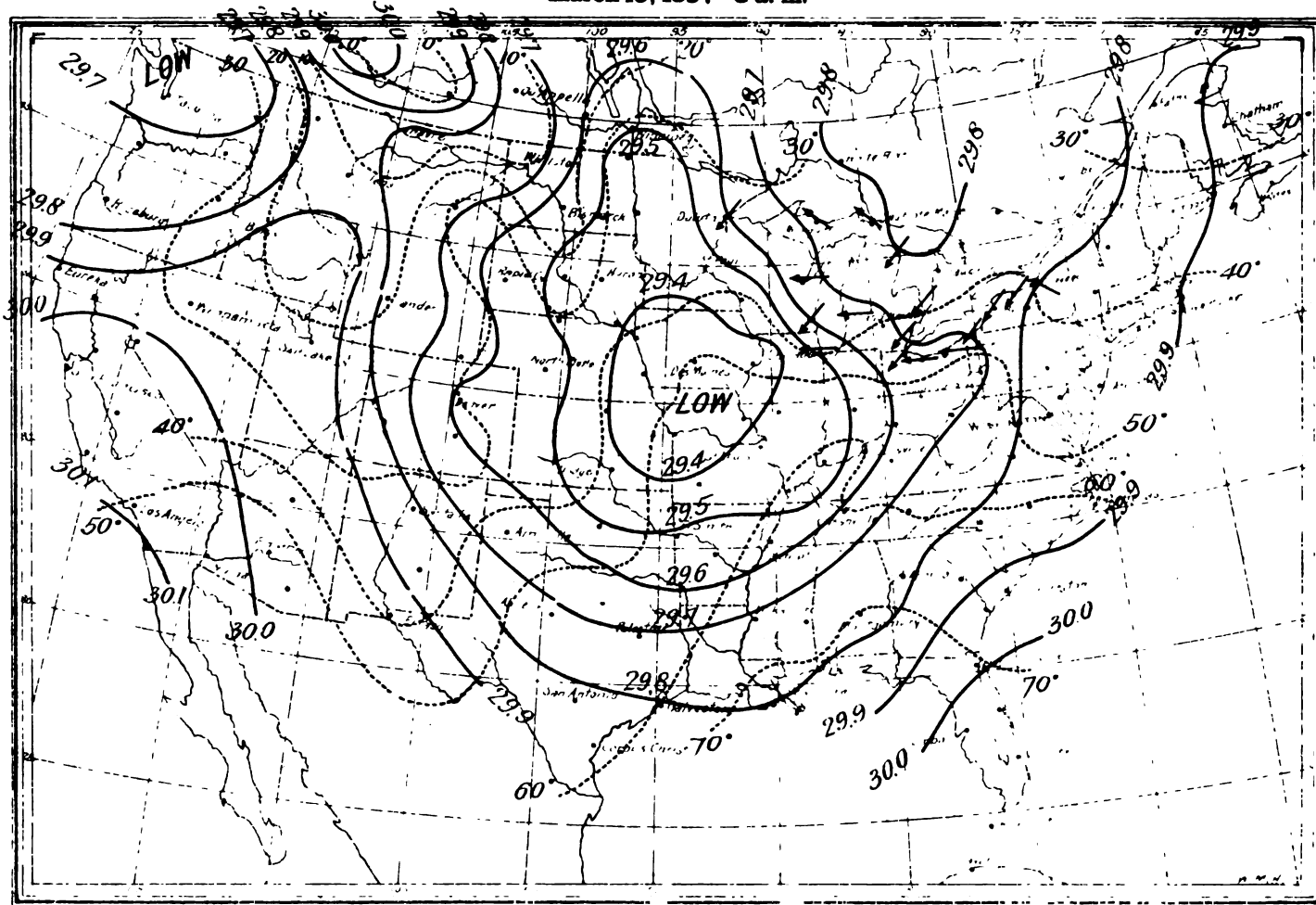


Chart CXXVI.

March 19, 1897—8 p. m.

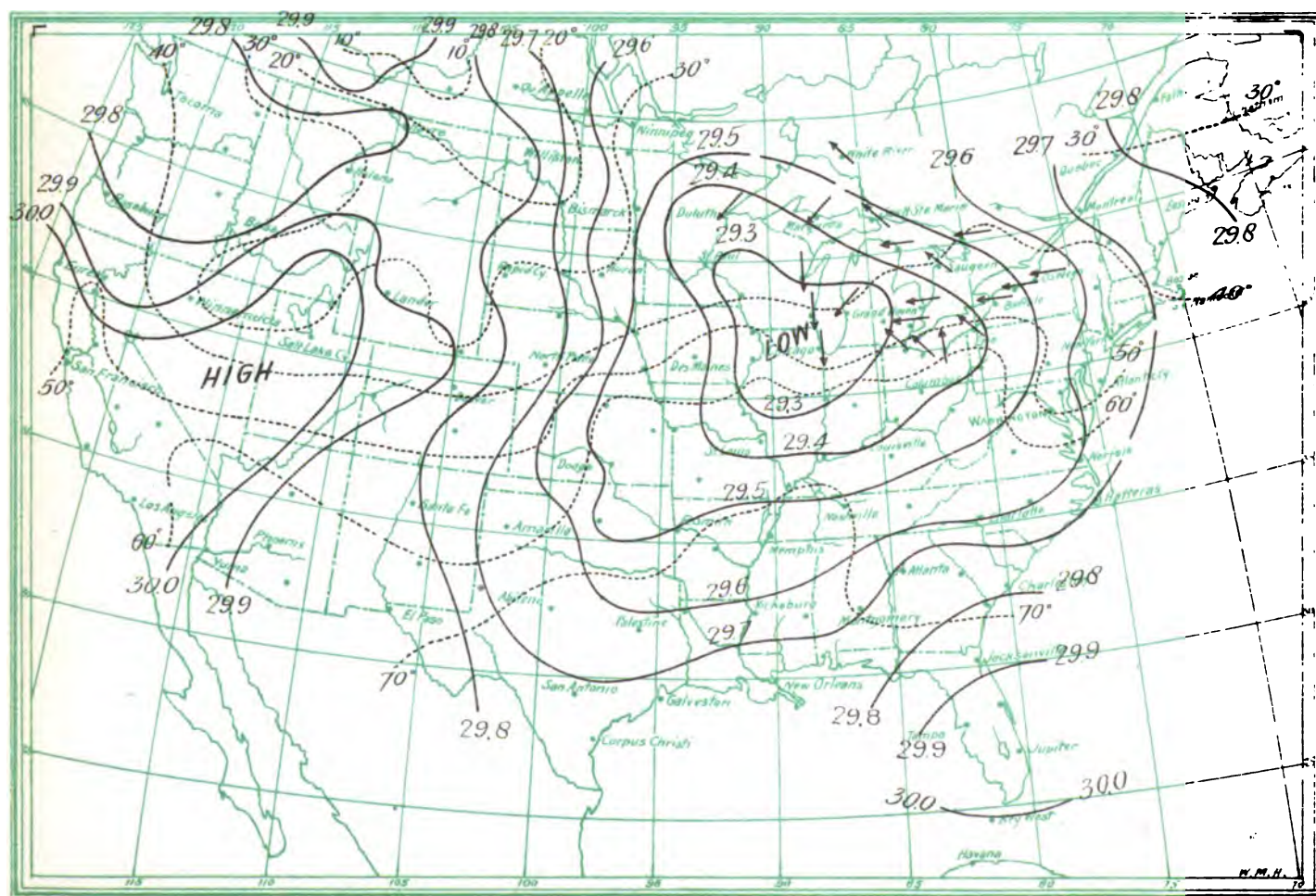


Chart CXXVII.

March 21, 1898—8 a. m.

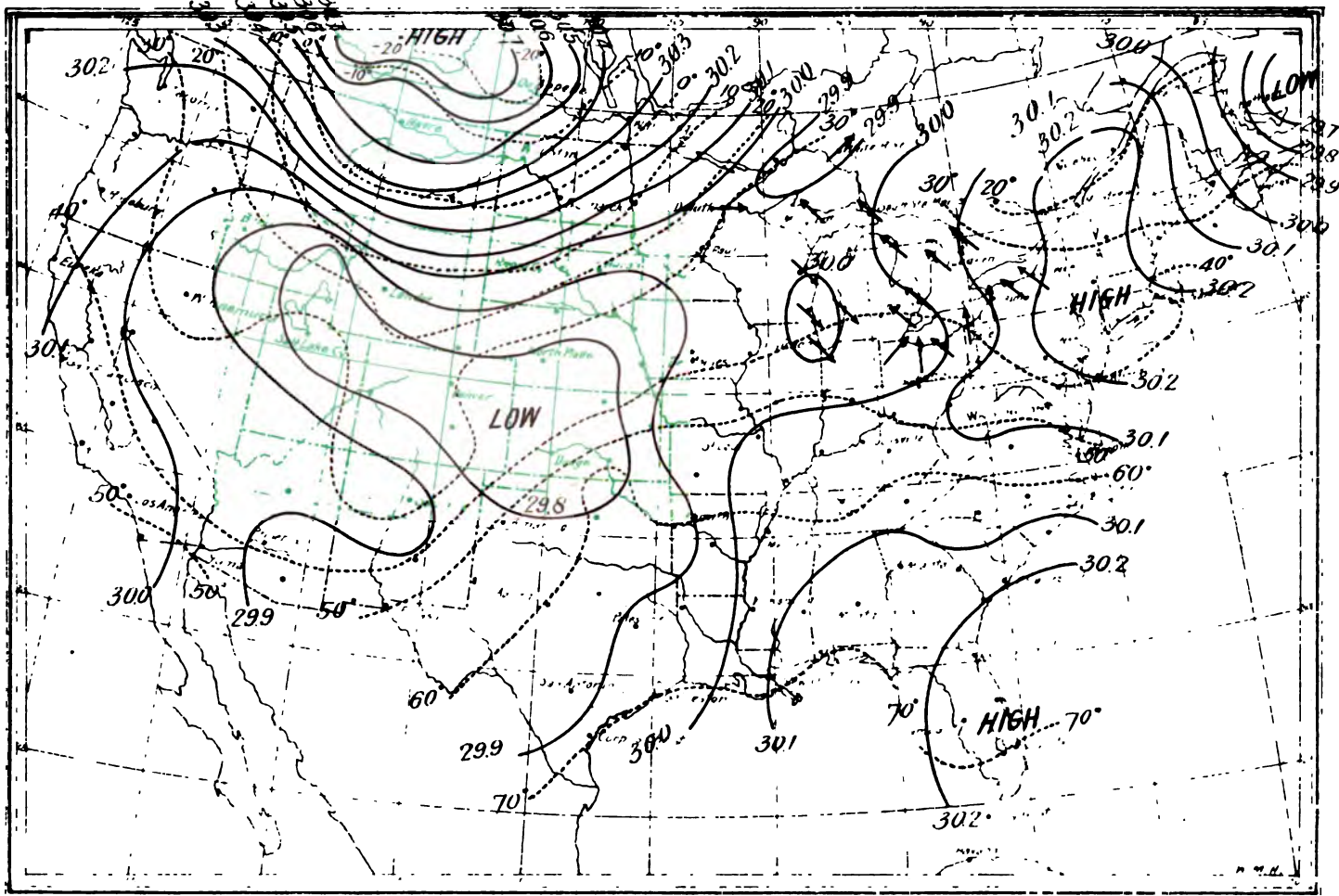


Chart CXXVIII.

March 21, 1898—8 p. m.

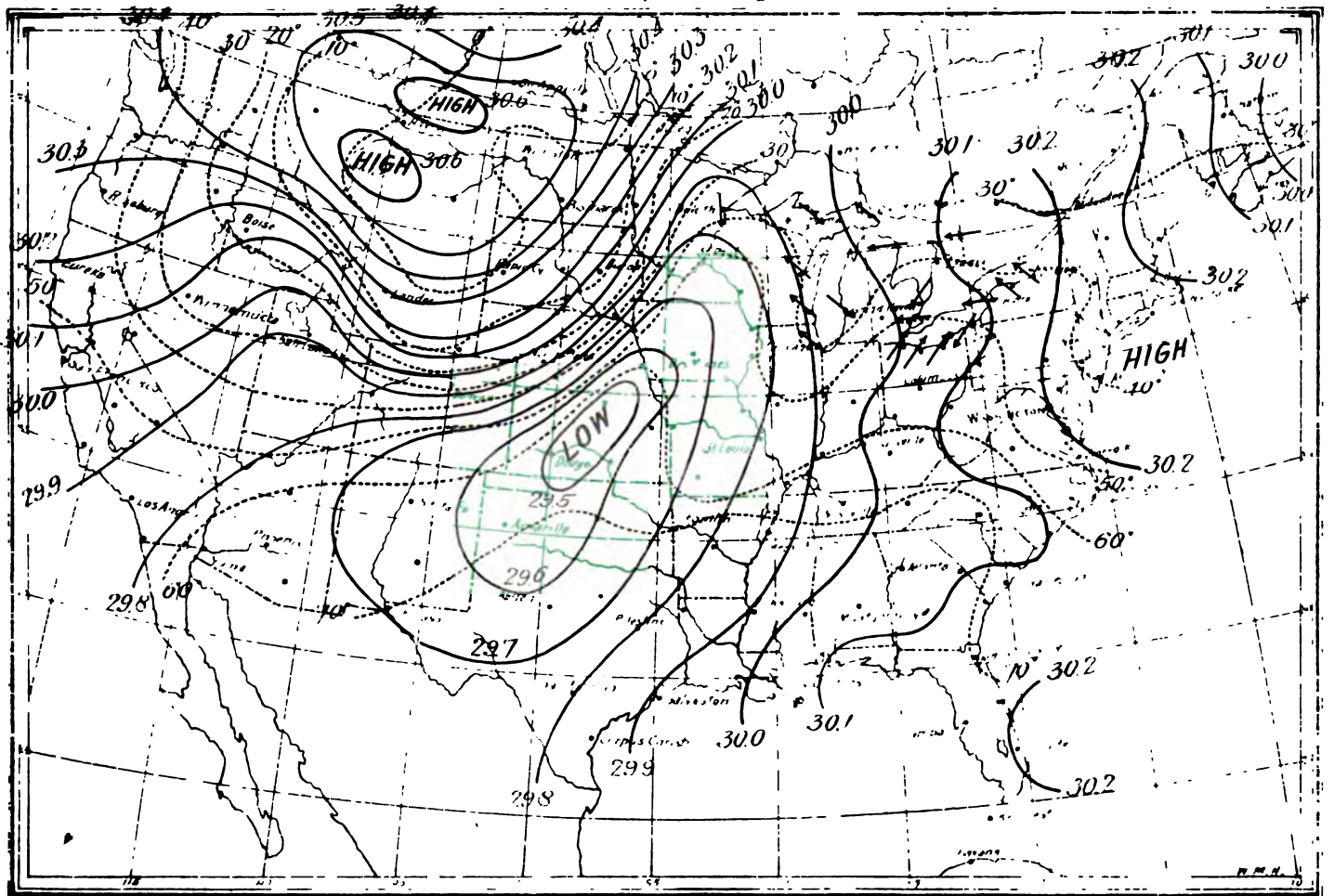


Chart COXIX.

March 22, 1898—8 a. m.

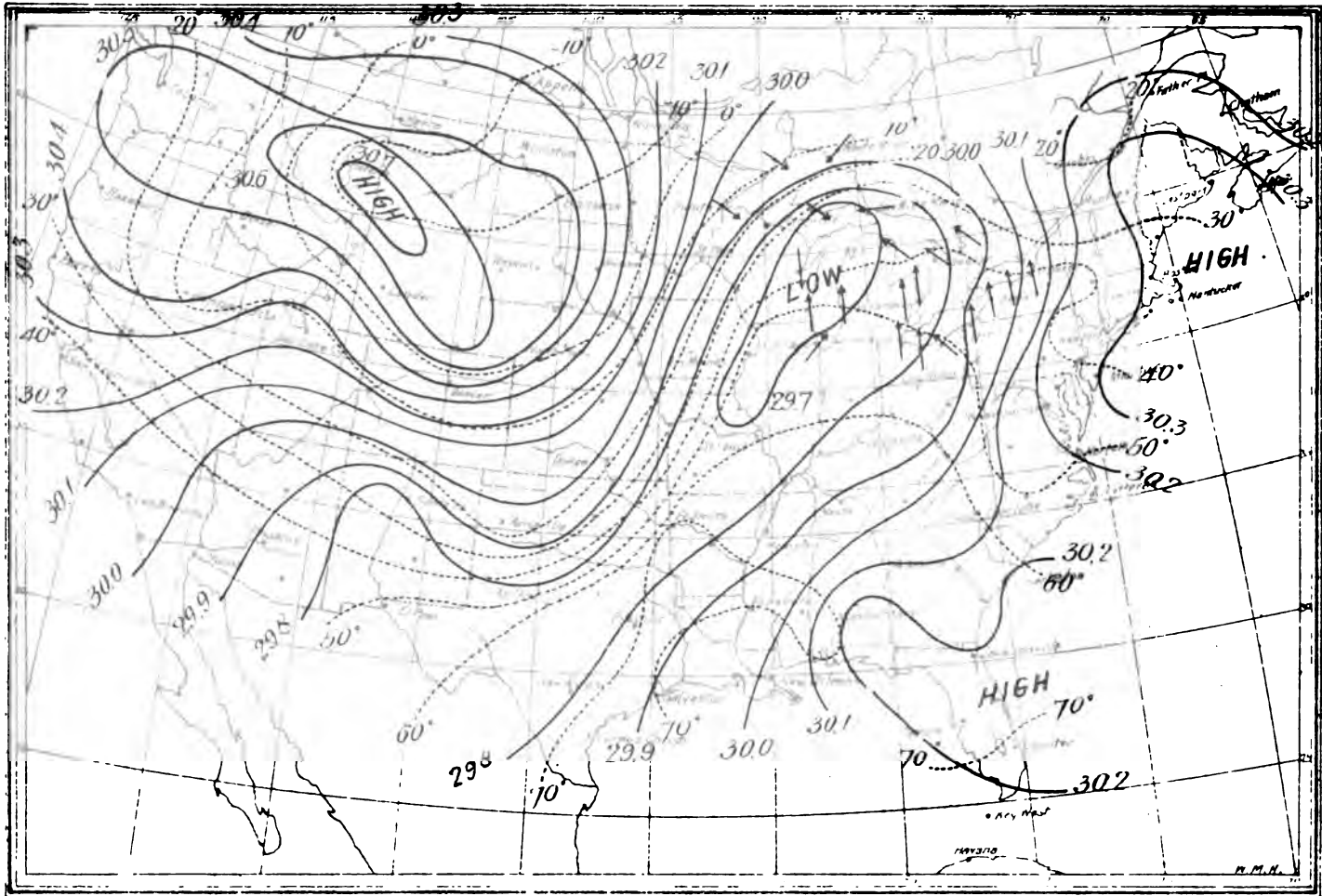
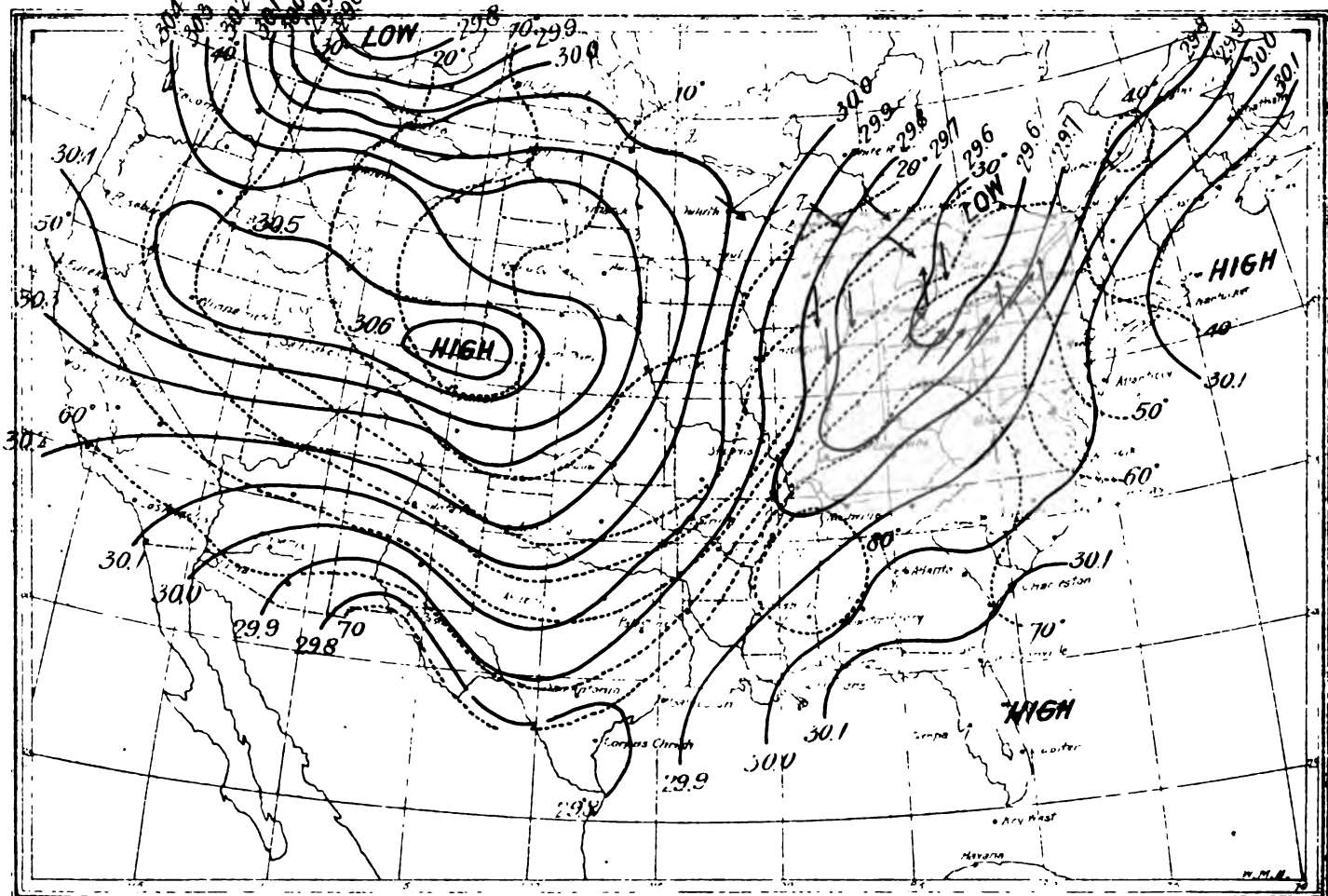


Chart COXX.

March 22, 1898—8 p. m.



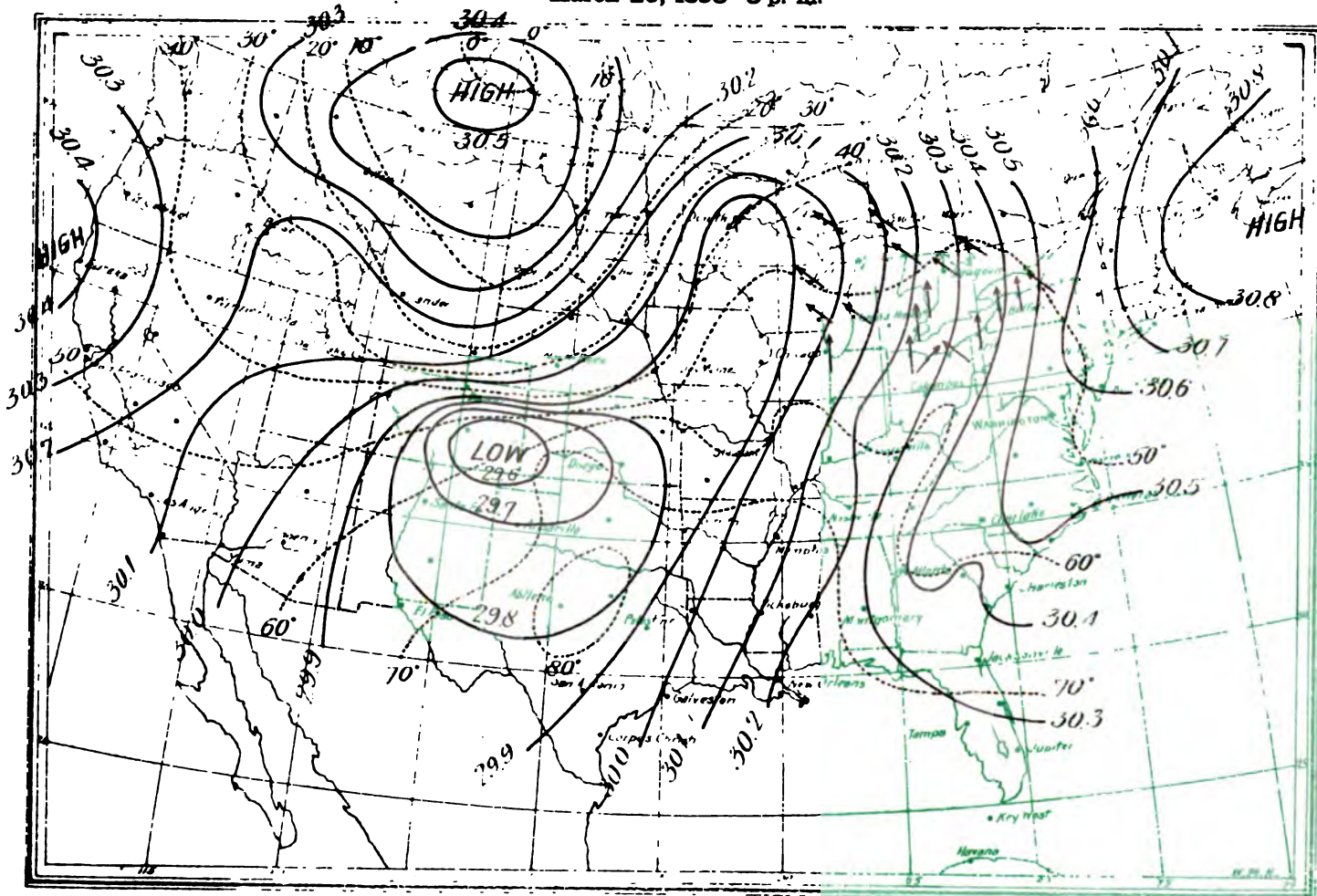
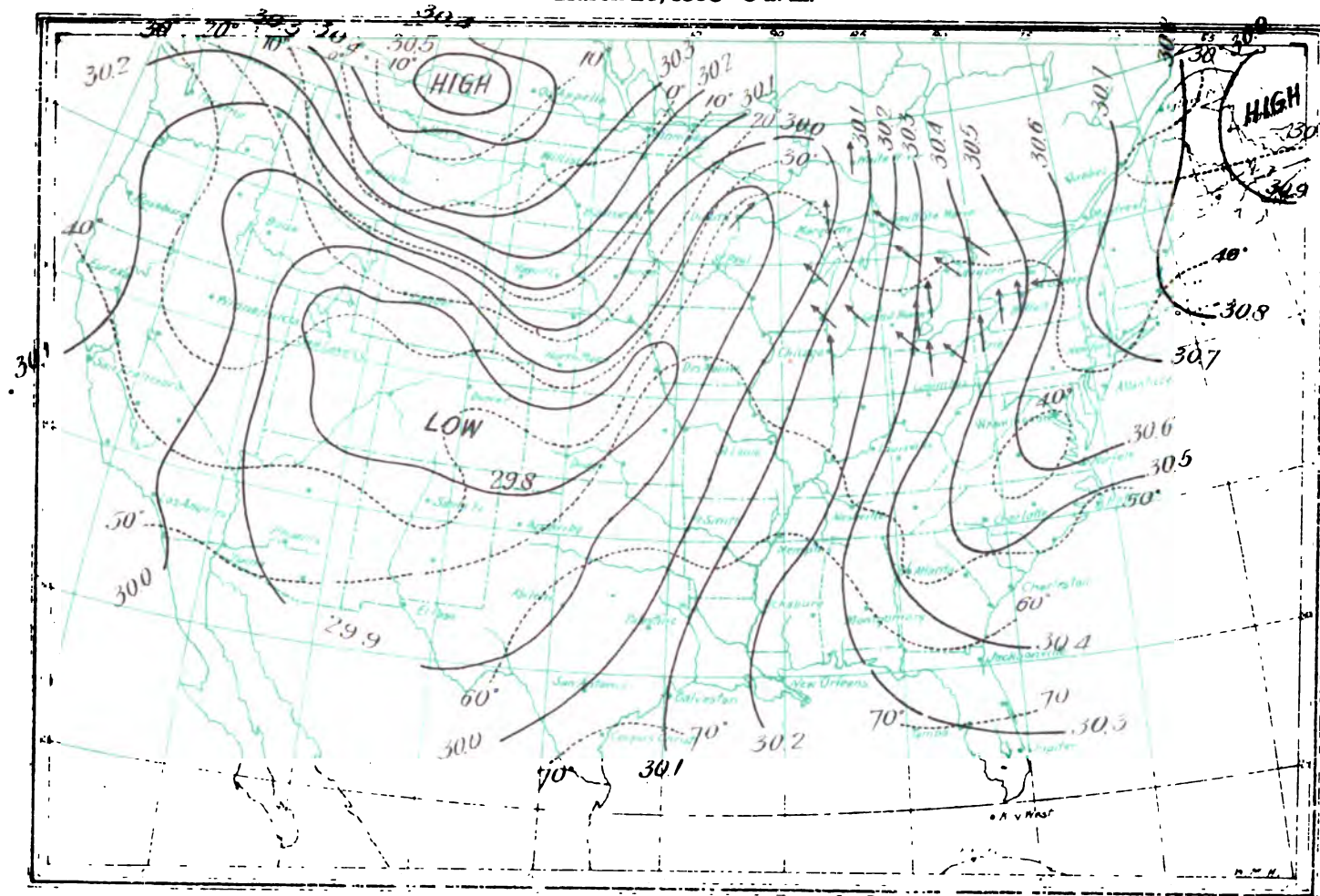


Chart COXXXIII.

March 27, 1898—8 a. m.

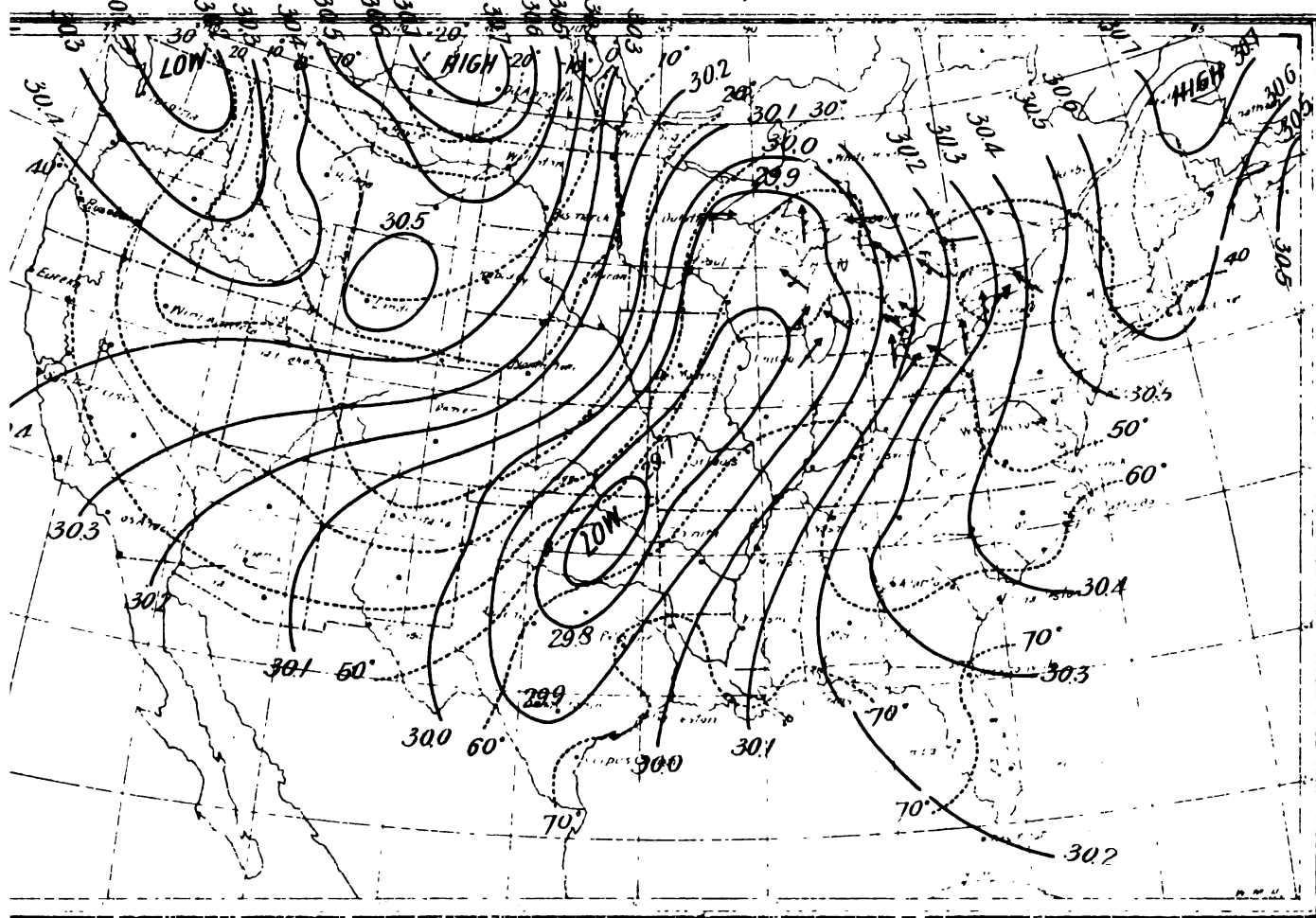


Chart COXXXIV.

March 27, 1898—8 p. m.

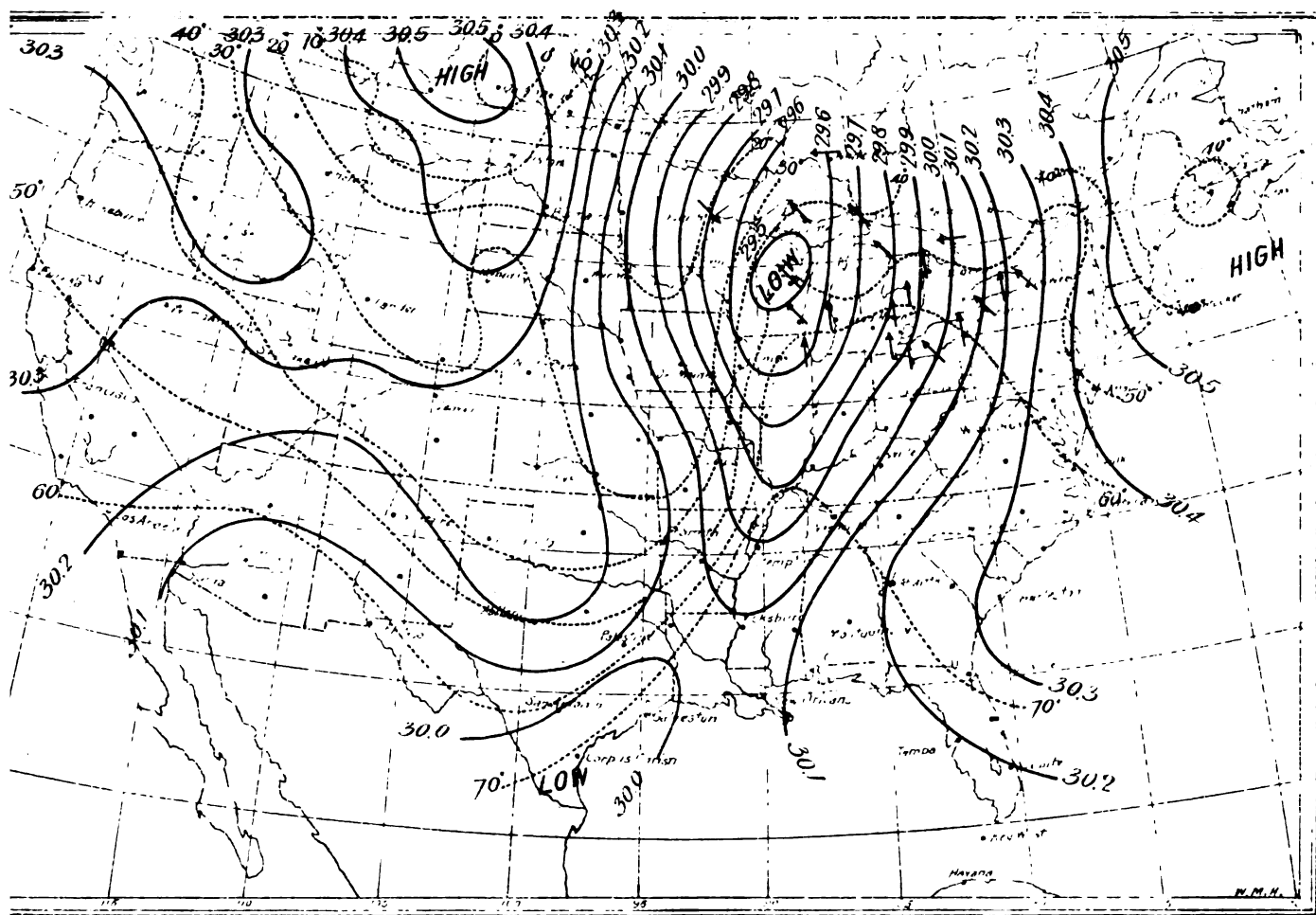


Chart CXXXV.

April 4, 1876—7:35 a. m.

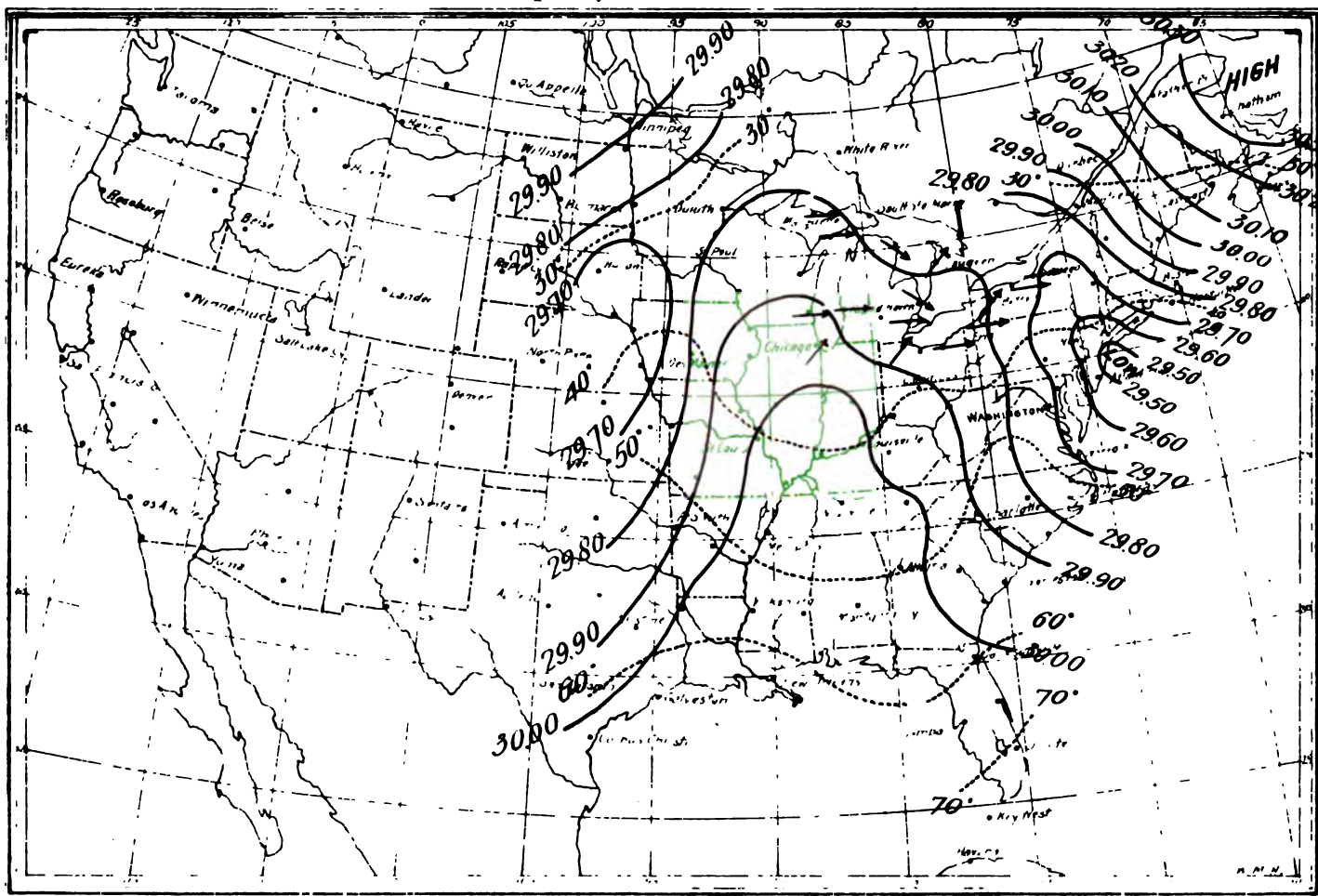


Chart CXXXVI.

April 4, 1876—4:35 p. m.

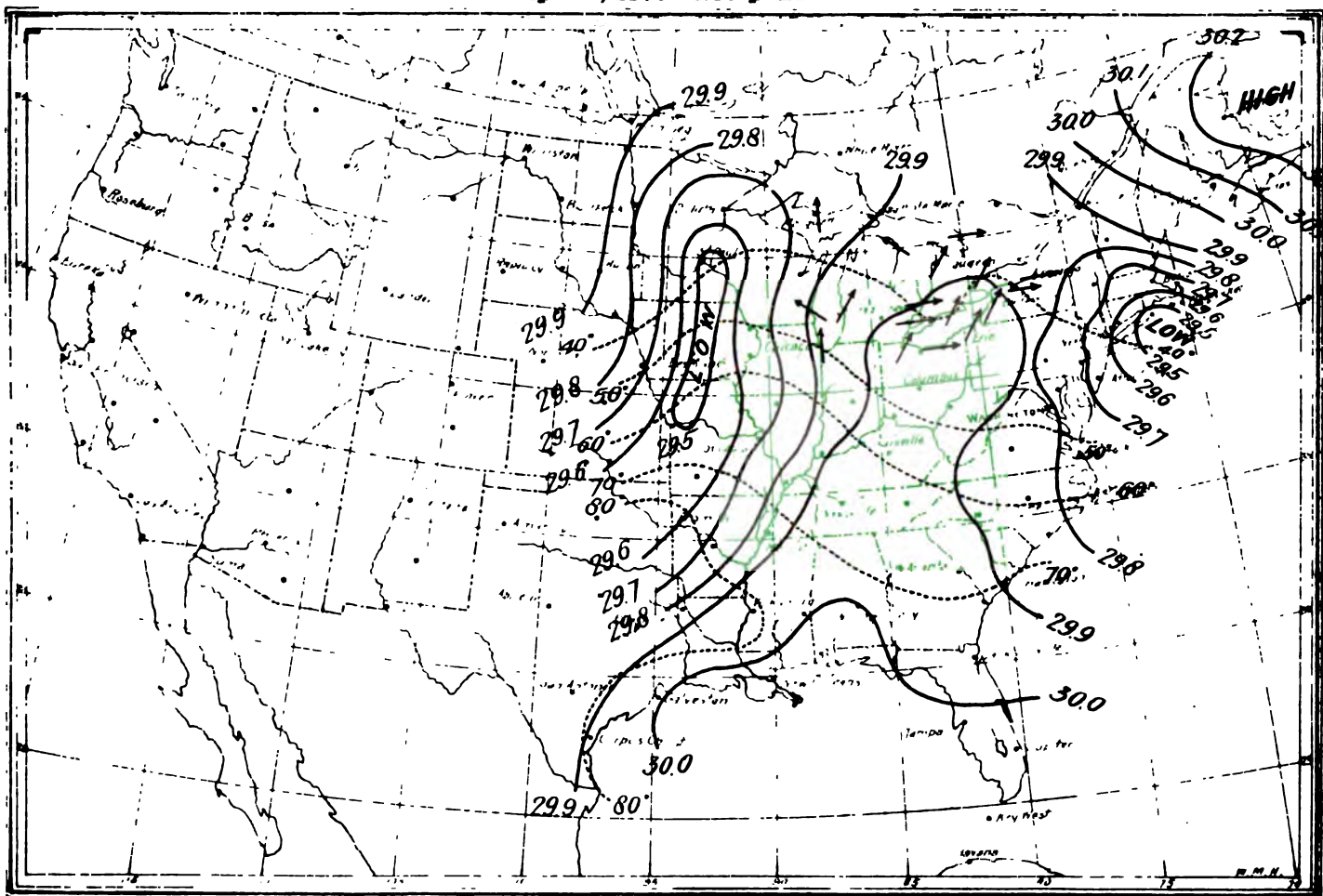


Chart CXXXVII.

April 5, 1876—7:35 a. m.

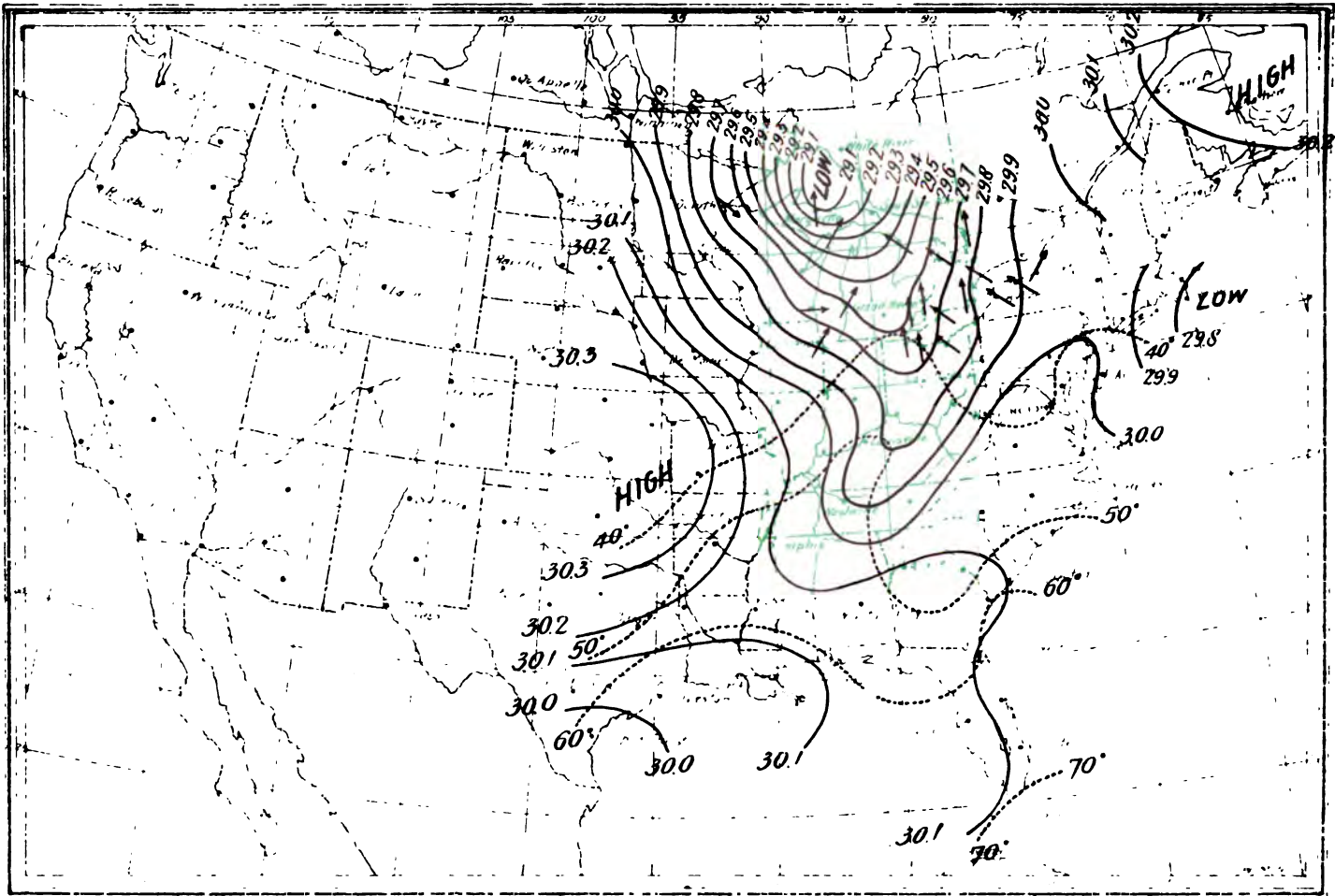


Chart CXXXVIII.

April 5, 1876—4:35 p. m.

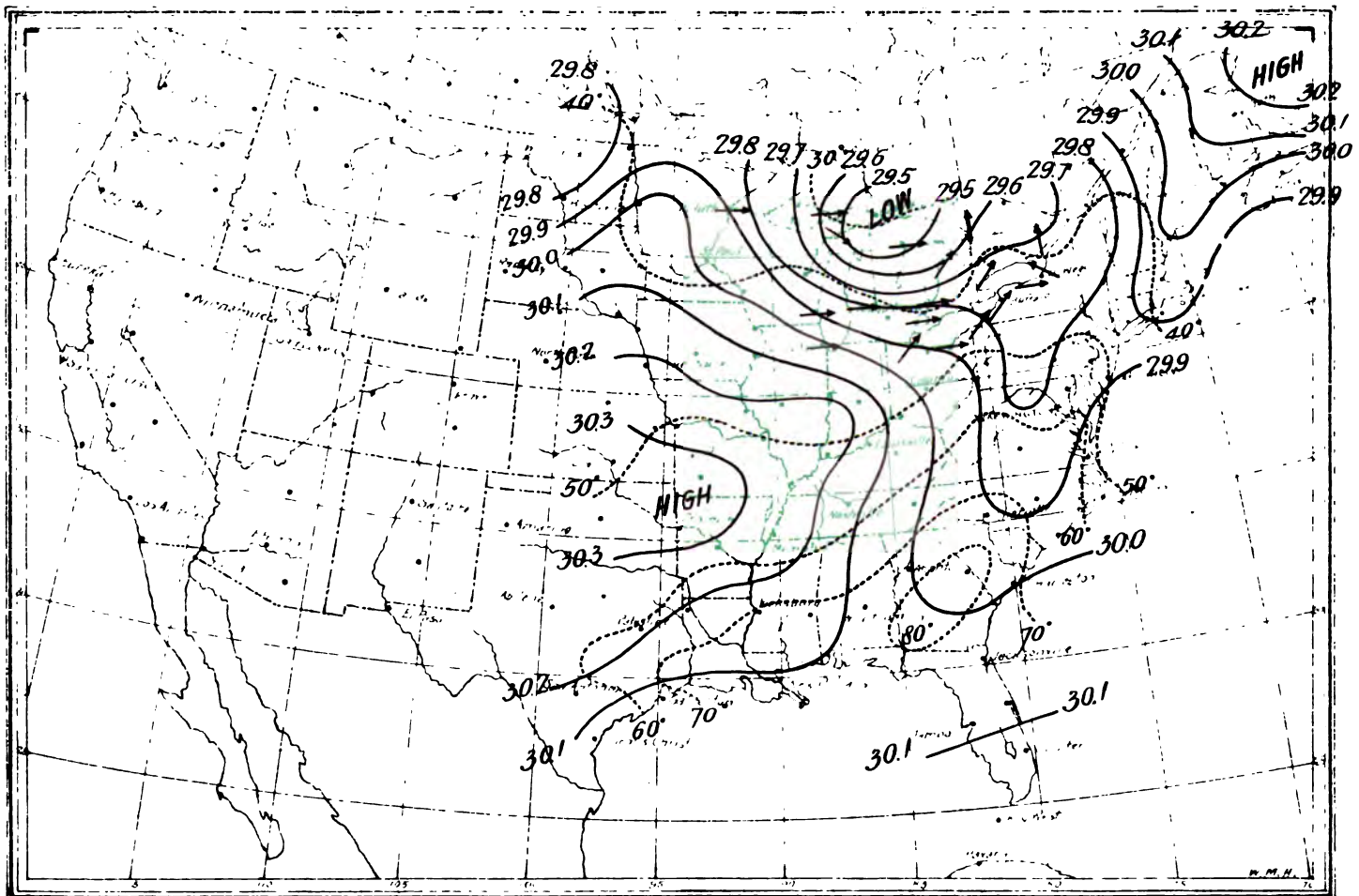


Chart OOOXIX.

April 9, 1878—7:35 a. m.

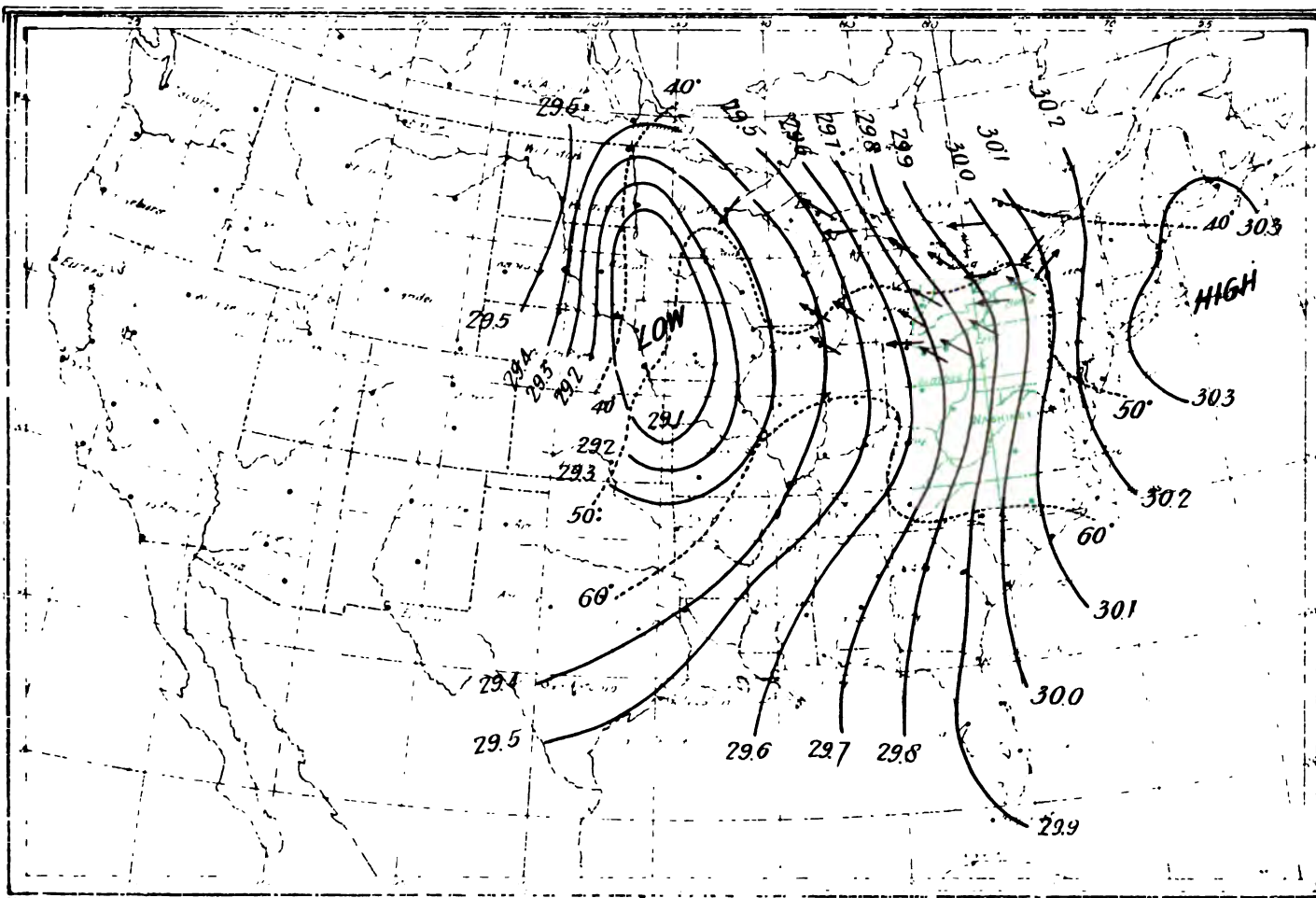
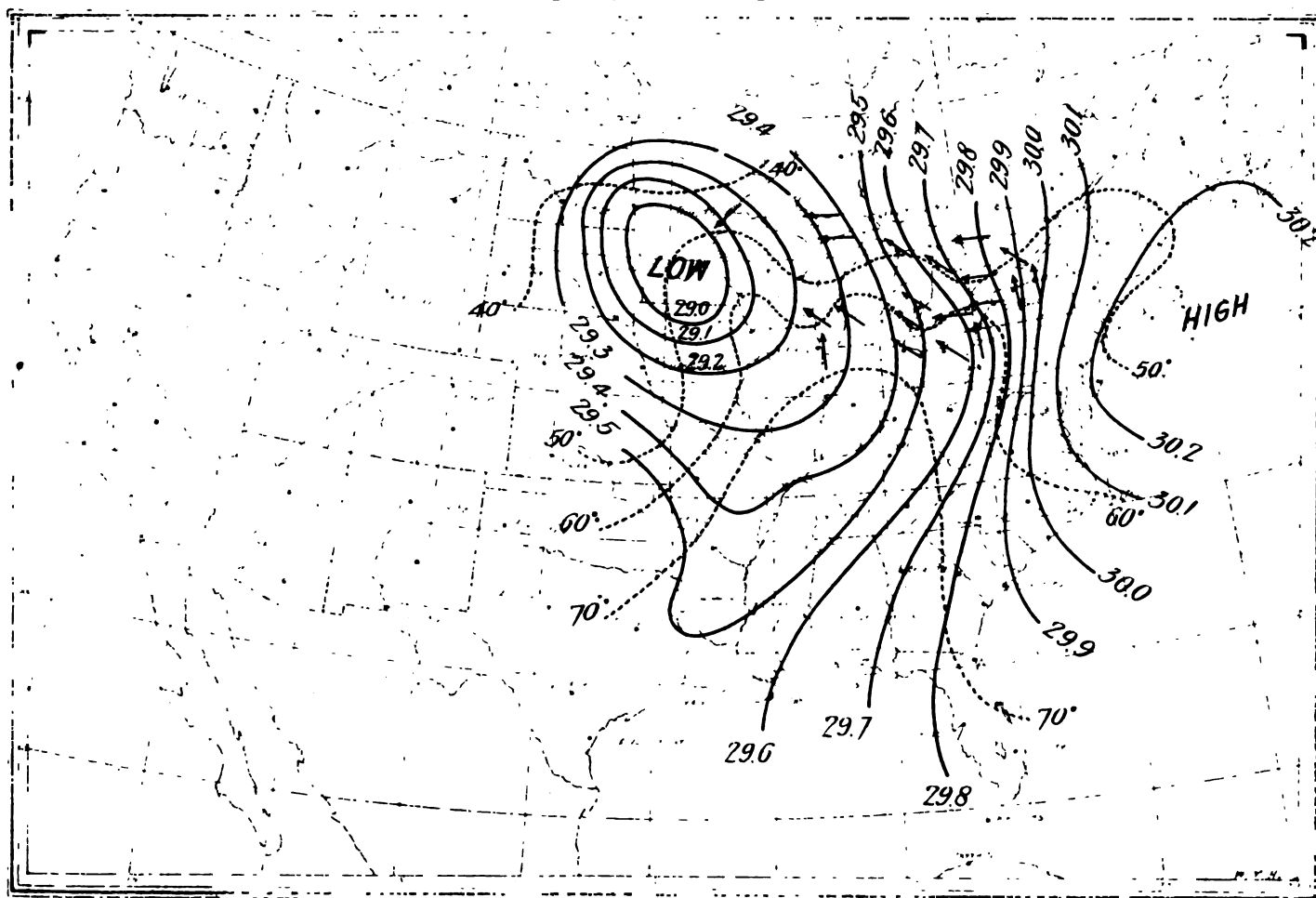


Chart OOOXXX.

April 9, 1878—4:35 p. m.



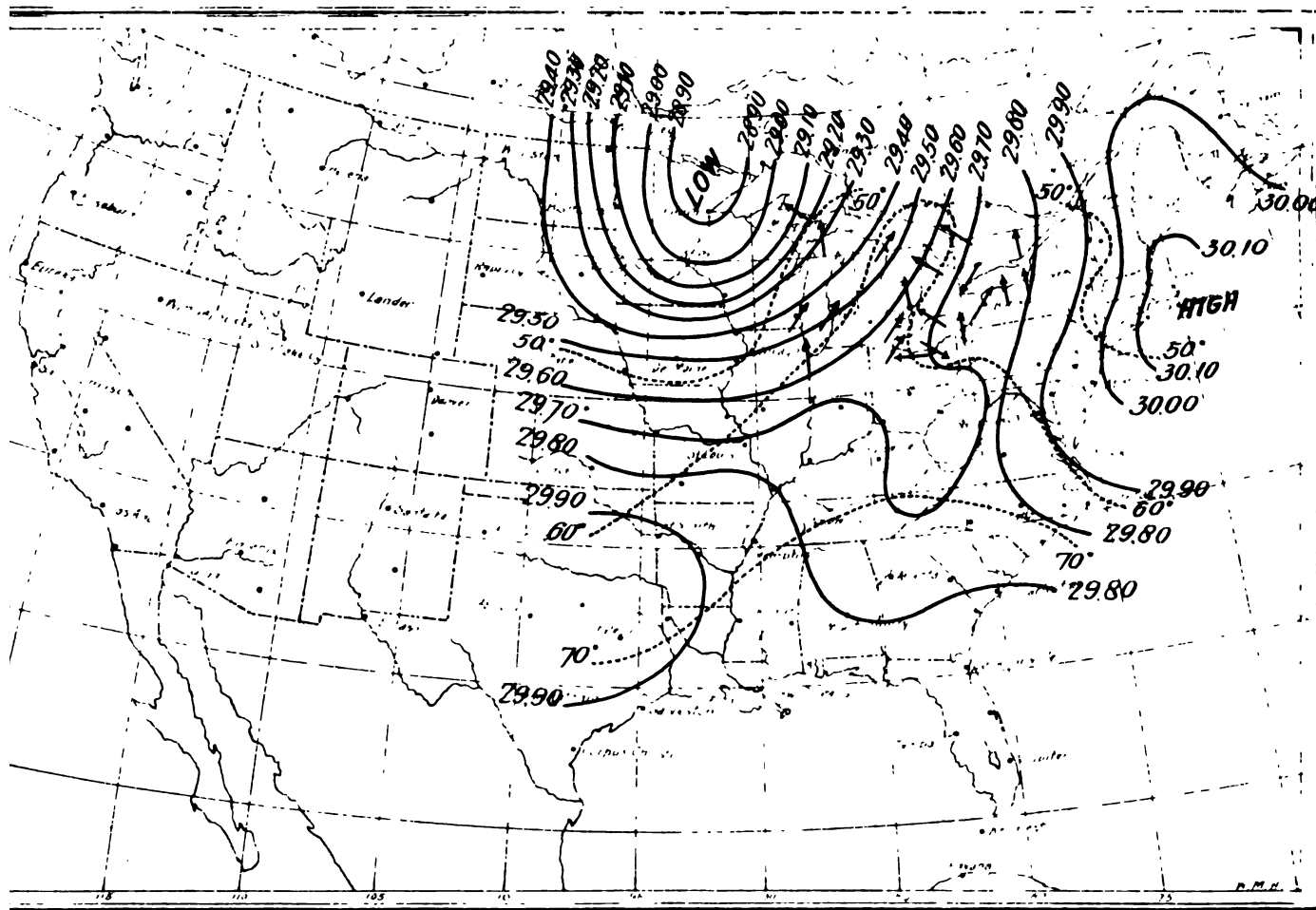
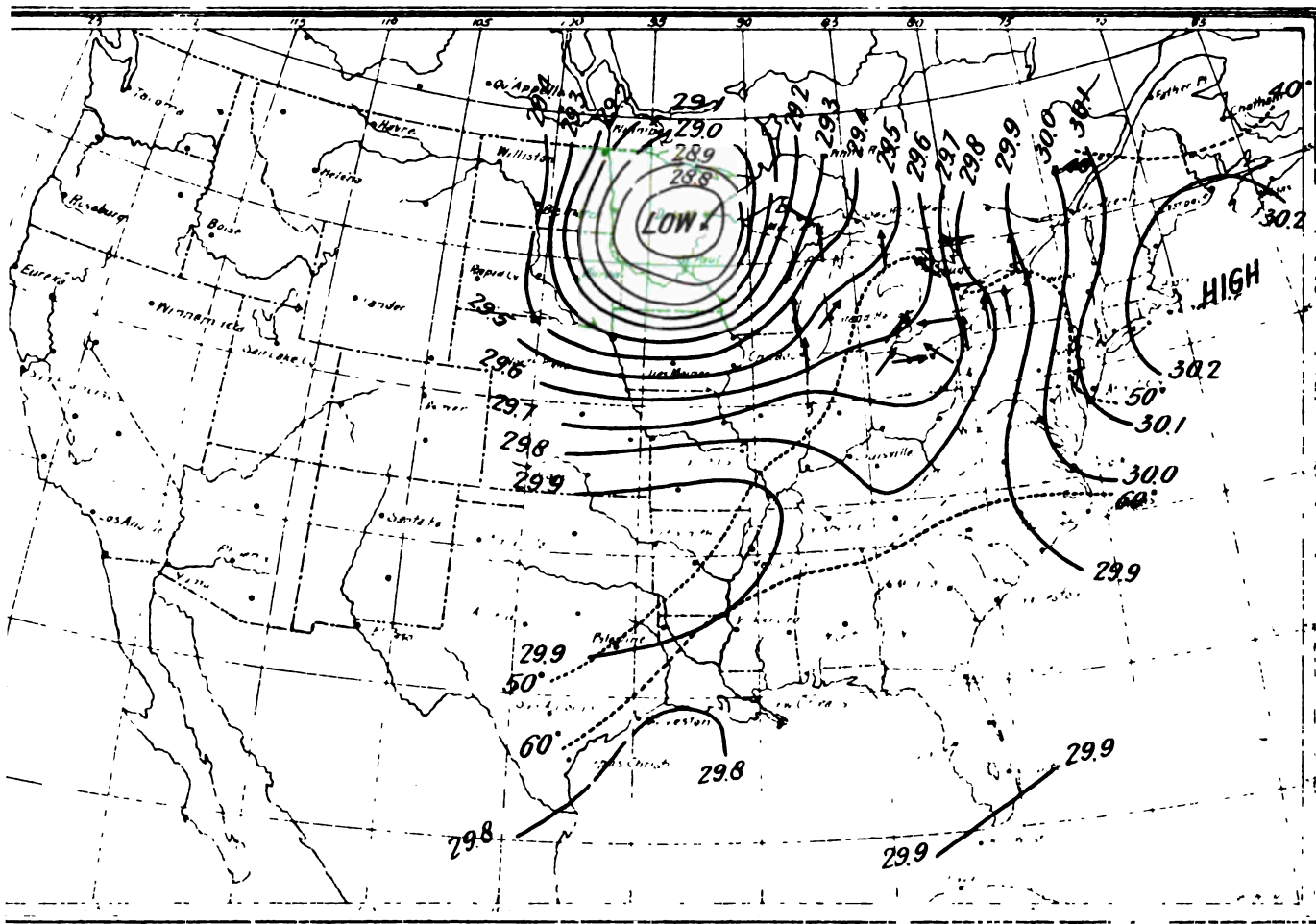


Chart CXXXXIII.

April 1, 1879—7:35 a. m.

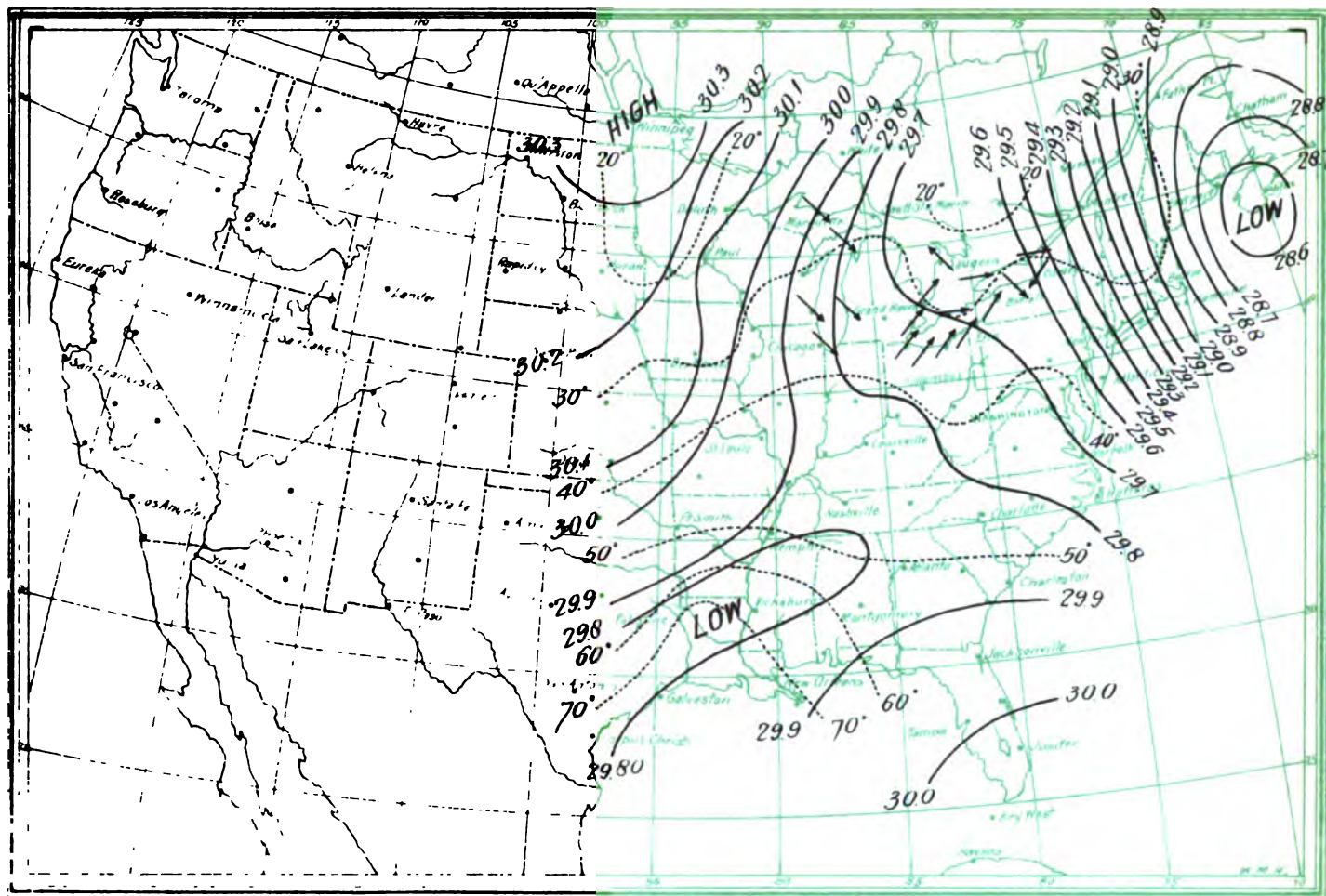


Chart CXXXXIV.

April 1, 1879—4:35 p. m.

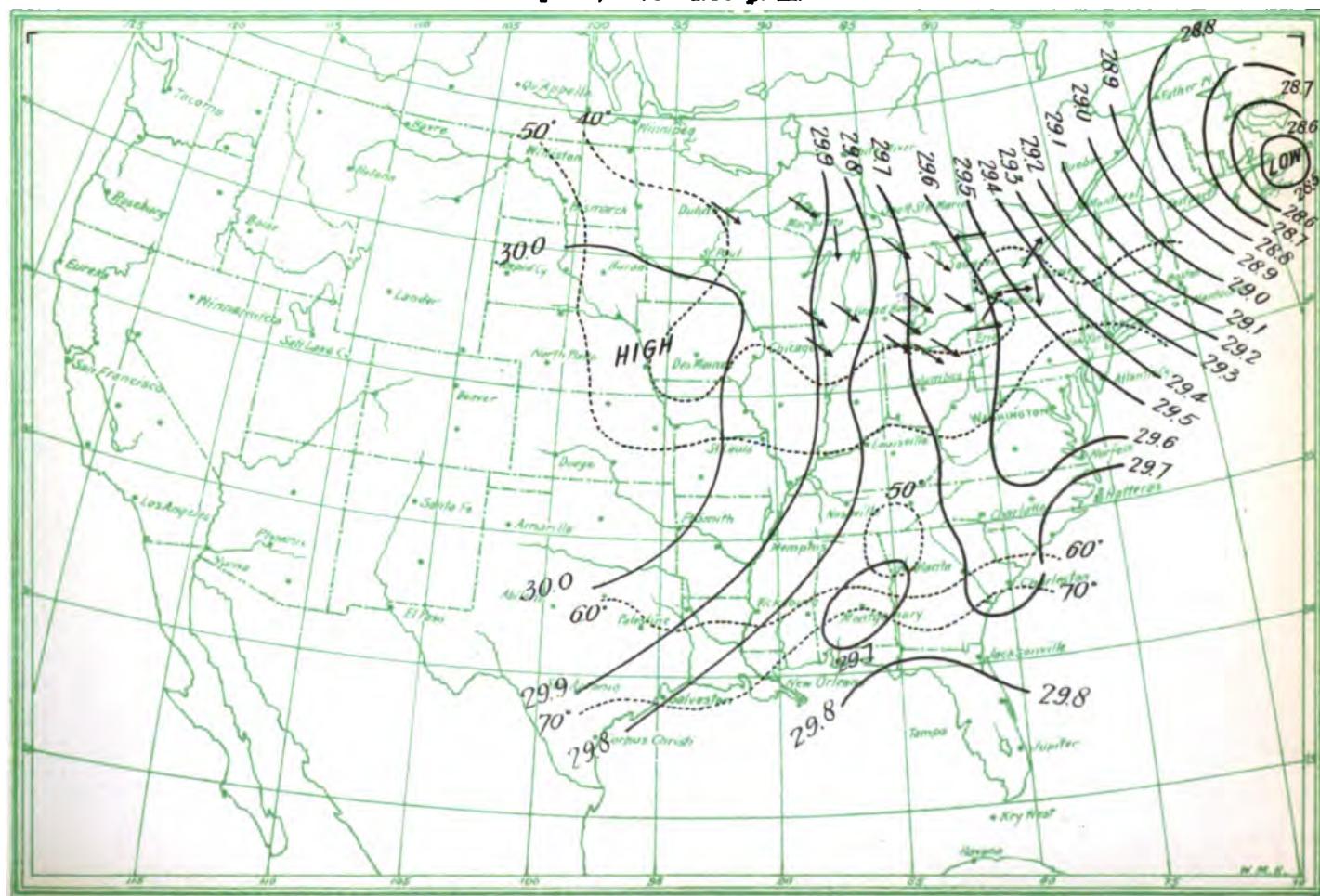


Chart COXXXV.

April 2, 1879—7:35 a. m.

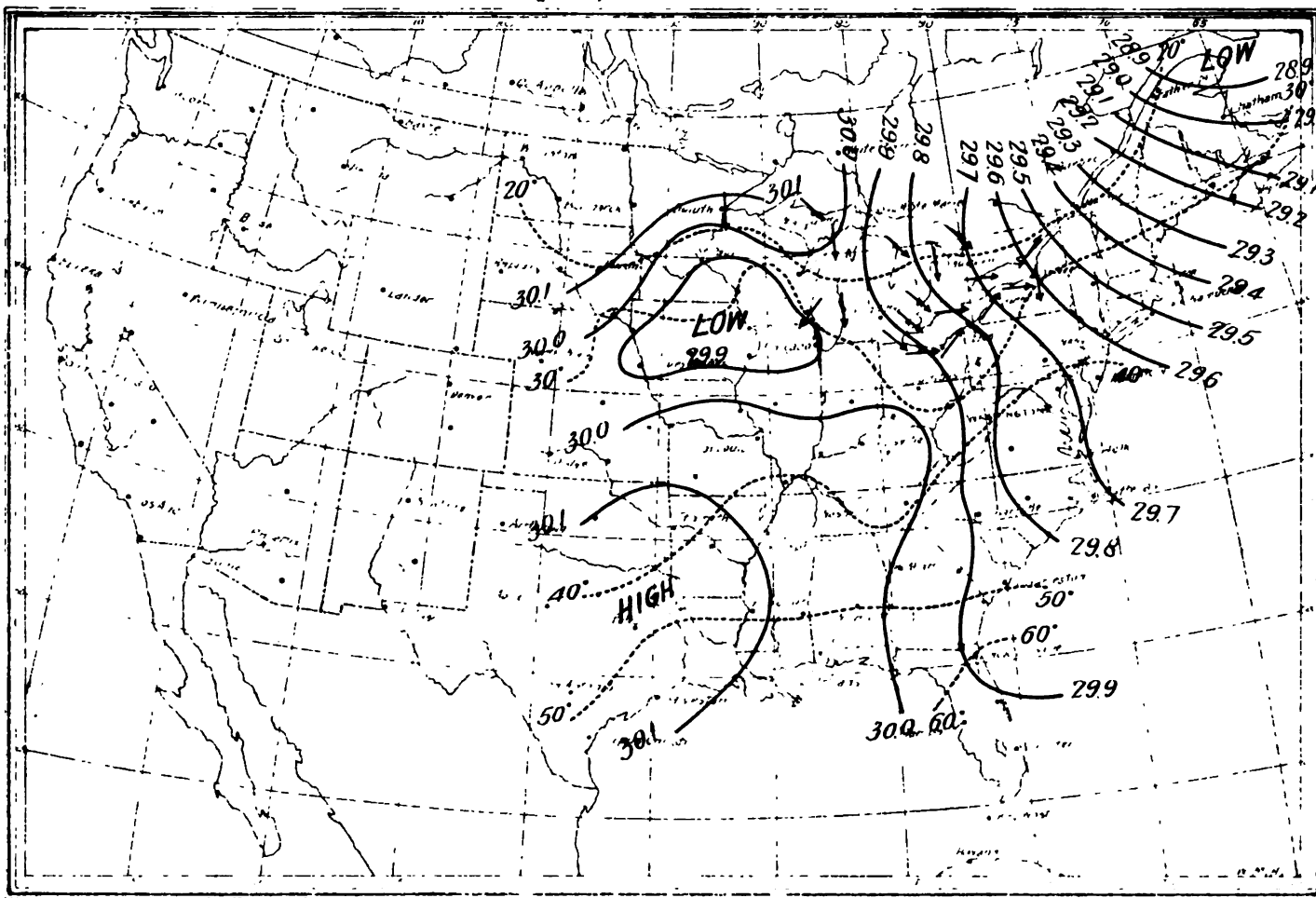


Chart COXXXVI.

April 2, 1879—4:35 p. m.

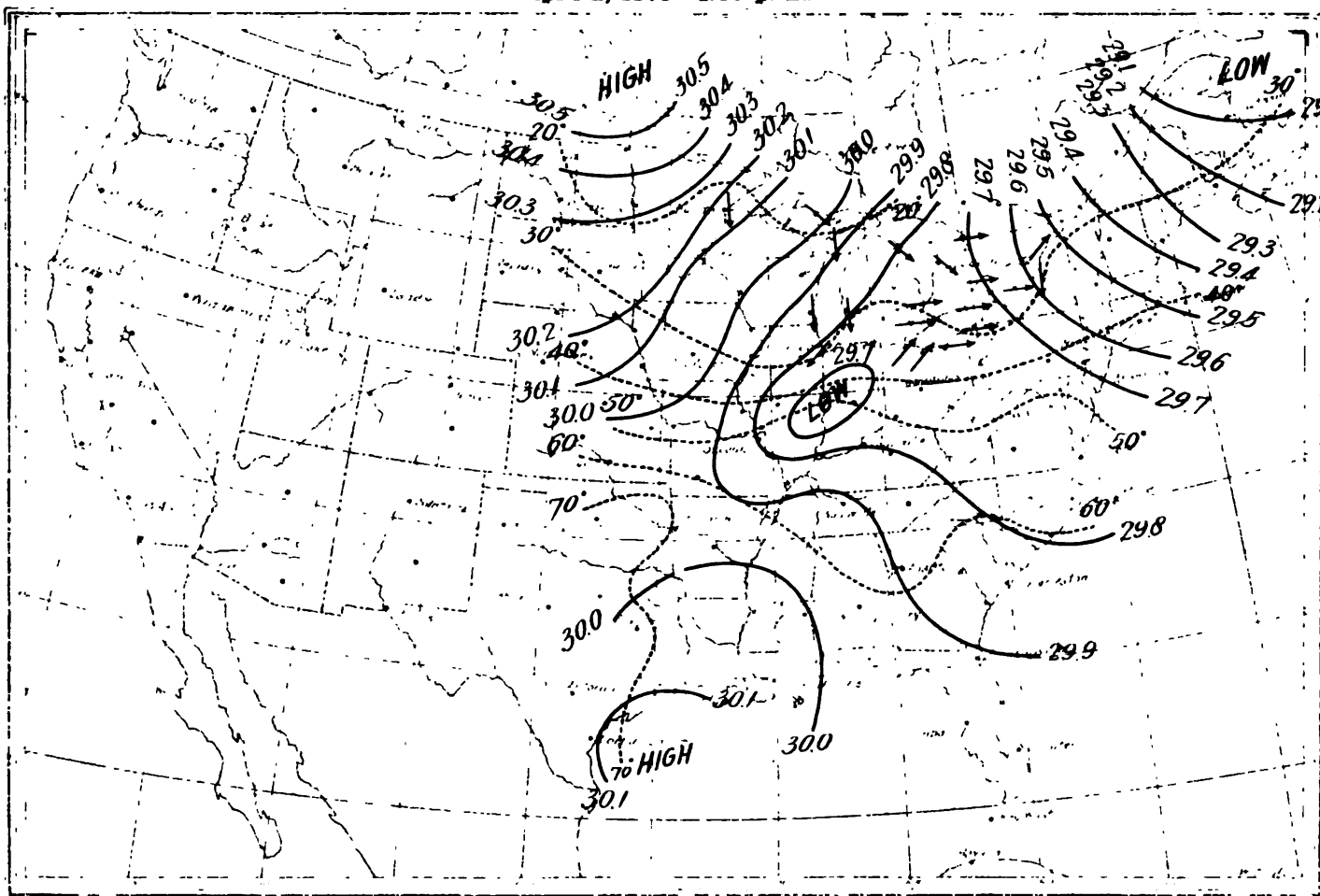


Chart CXXXXVII.

April 9, 1879—7:35 a. m.

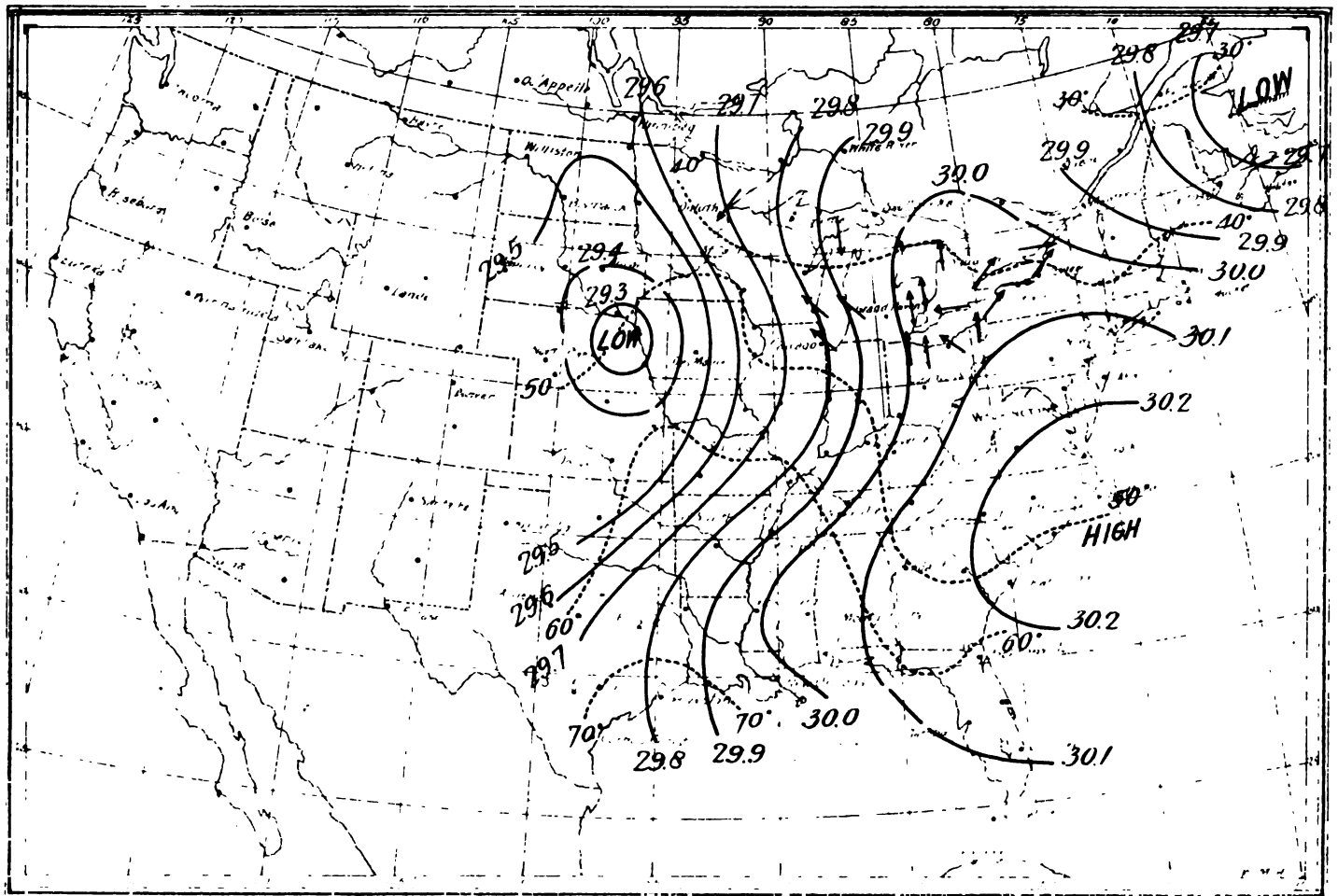


Chart CXXXXVIII.

April 9, 1879—4:35 p. m.

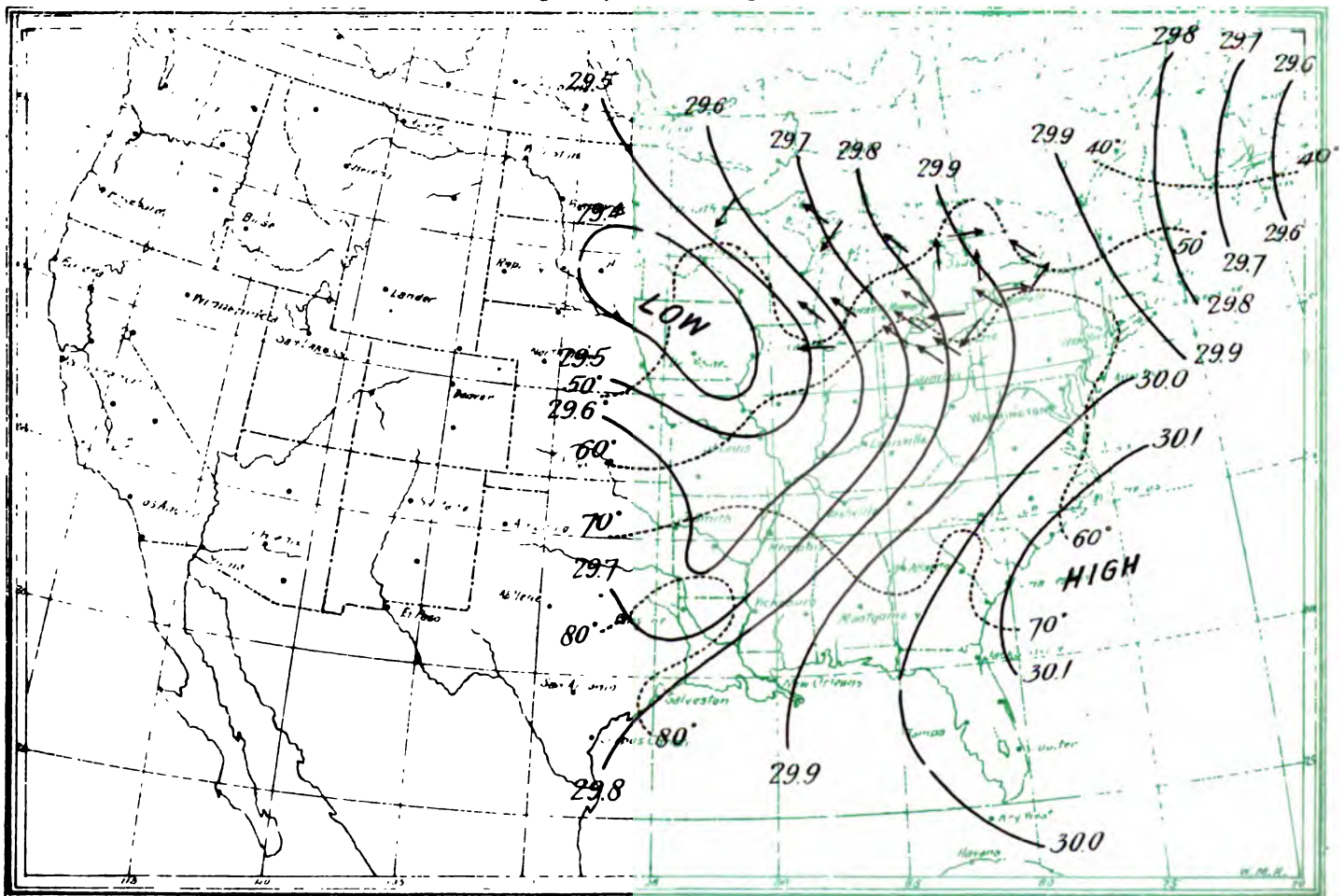


Chart CXXXIX.

April 10, 1879—7:35 a. m.

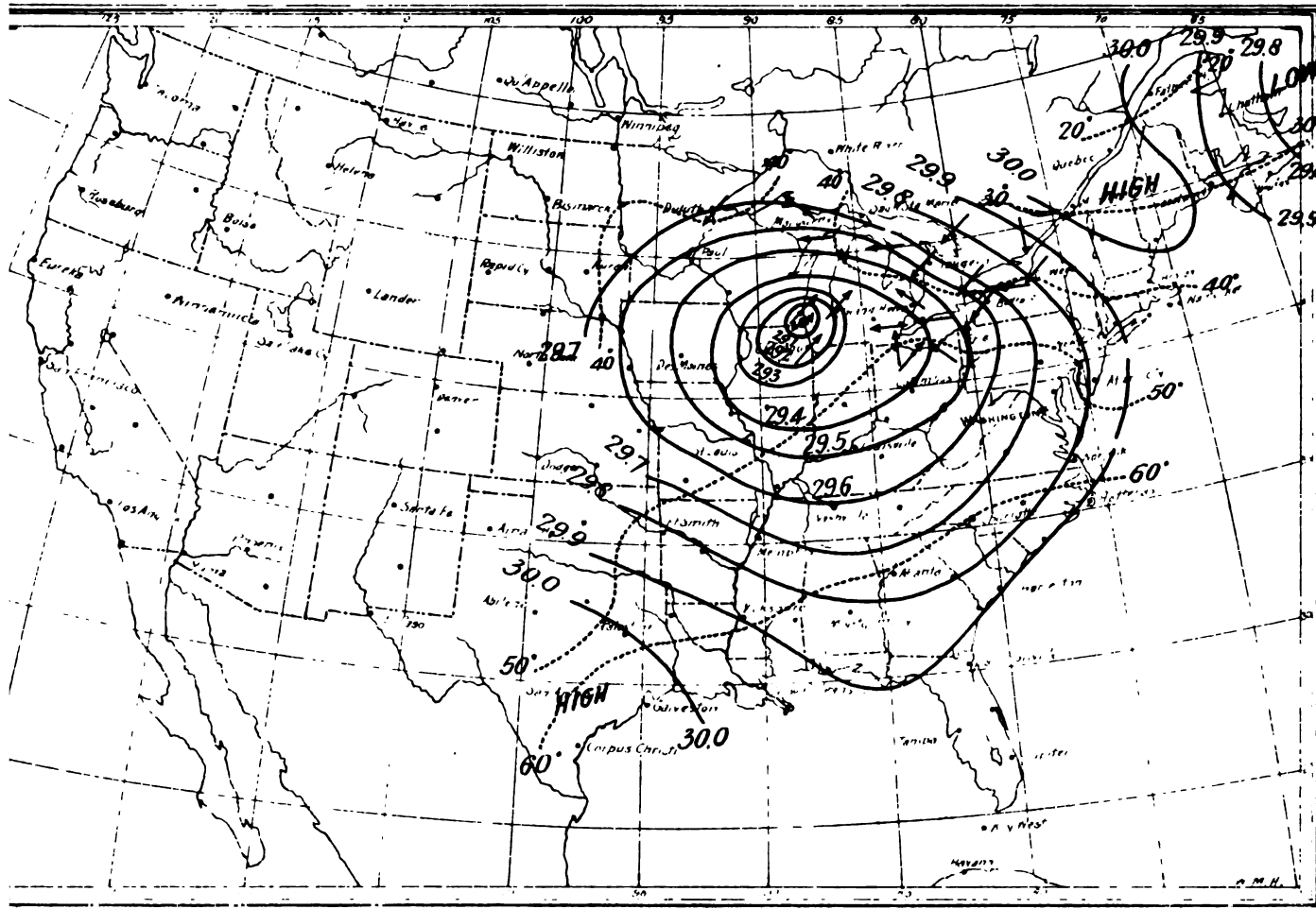


Chart CXXI.

April 10, 1879—4:35 p. m.

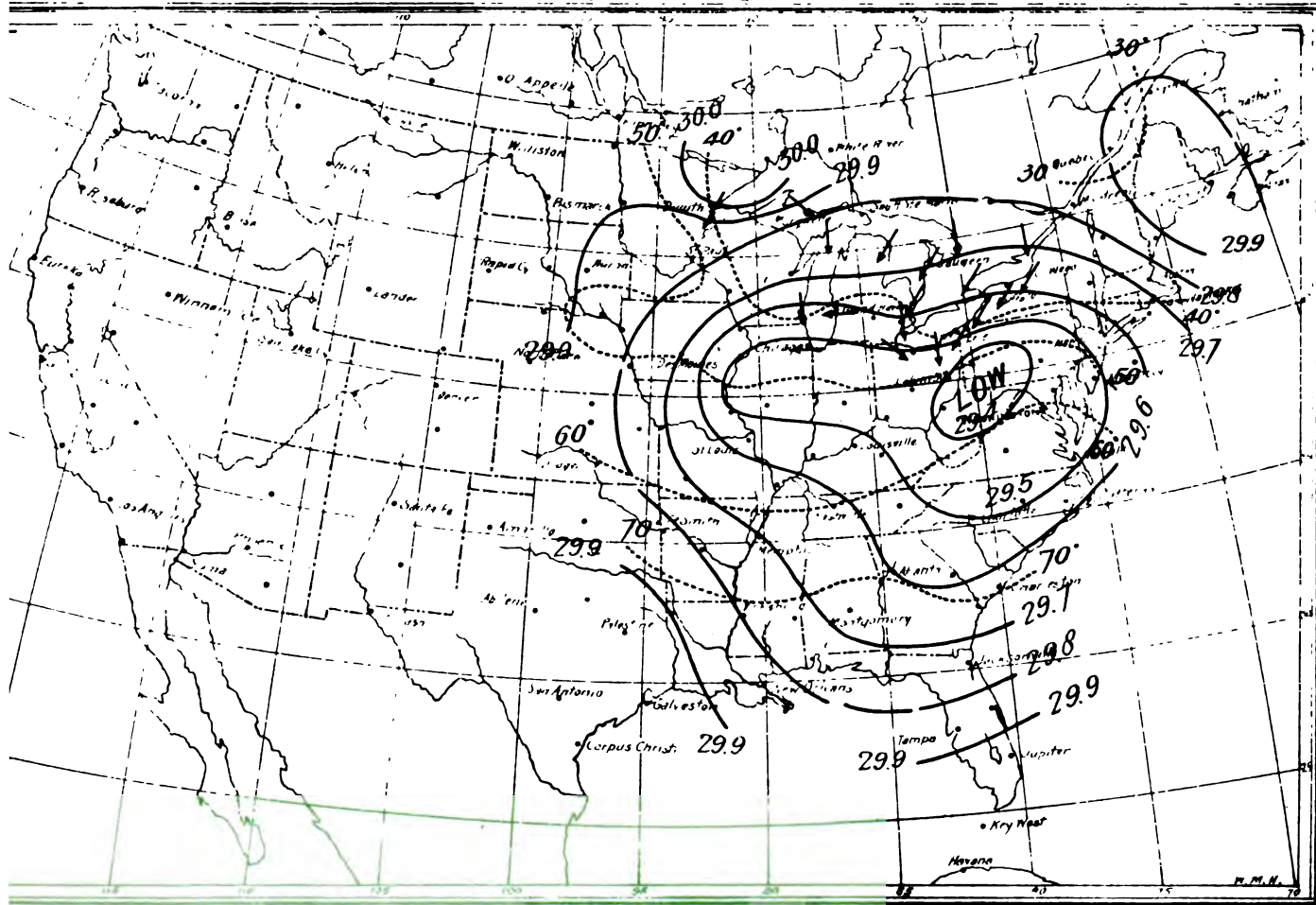


Chart COXLI.

April 18, 1880—7 a. m.

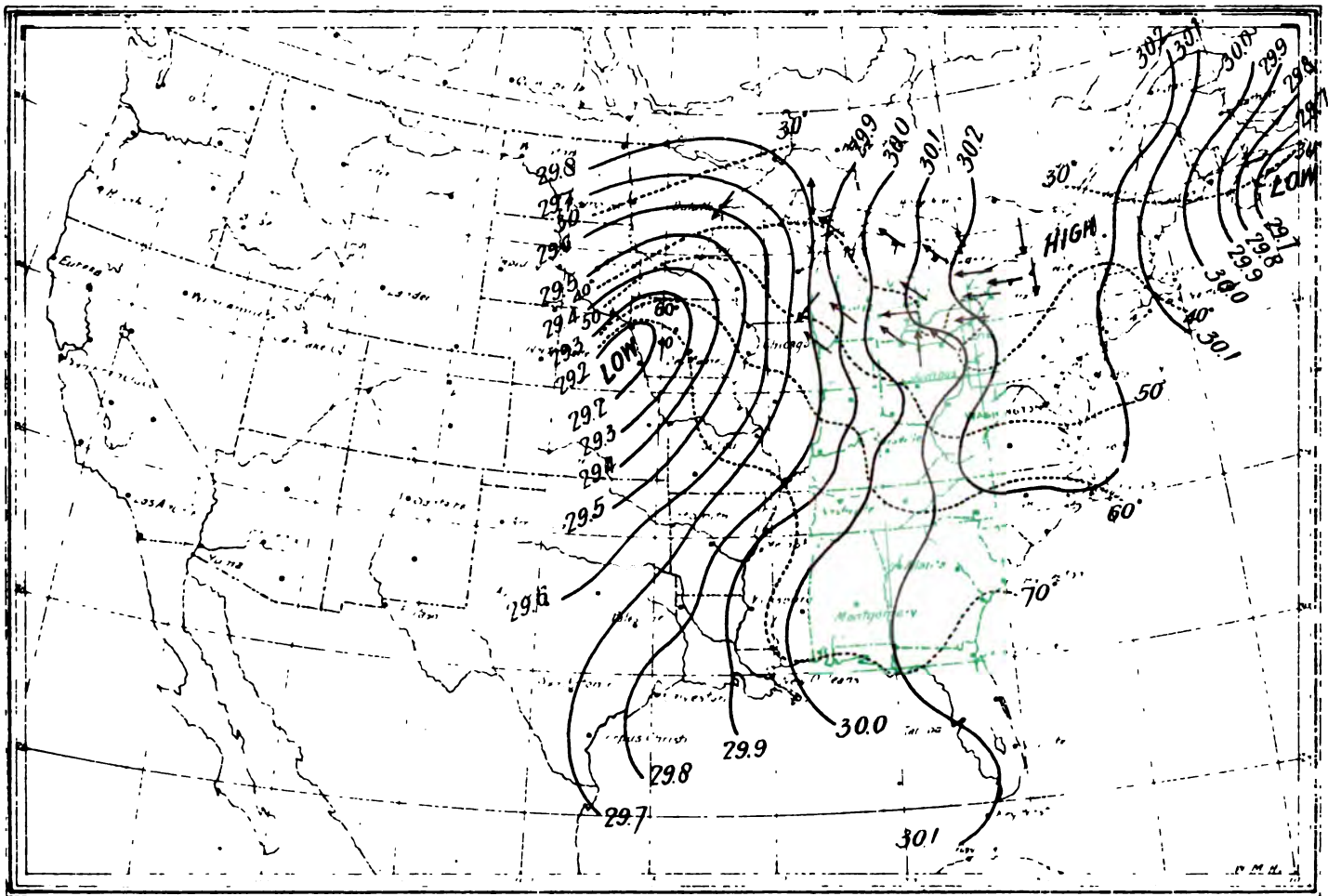


Chart COXLII.

April 18, 1880—3 p. m.

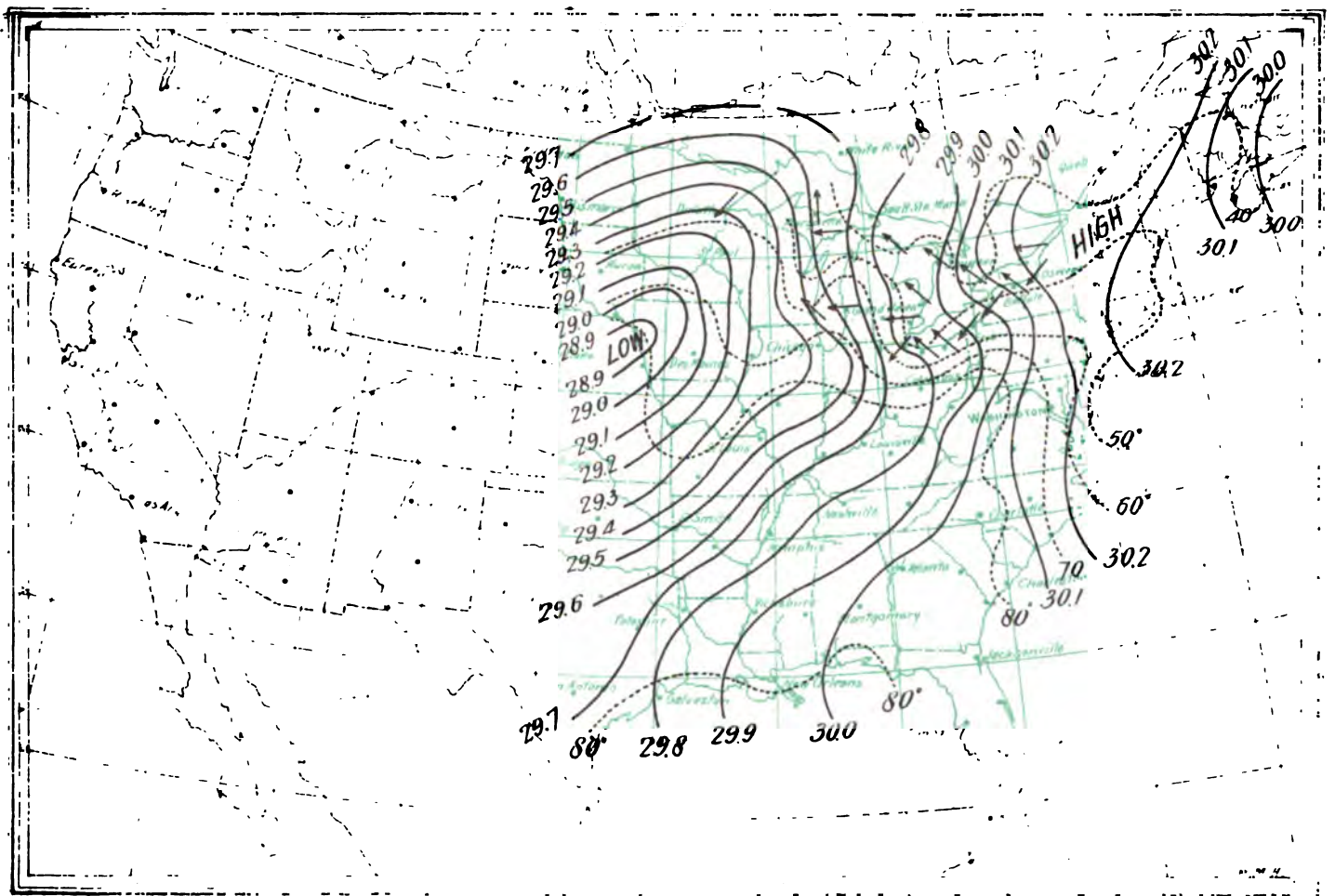


Chart CXXLIII.

April 19, 1880—7 a. m.

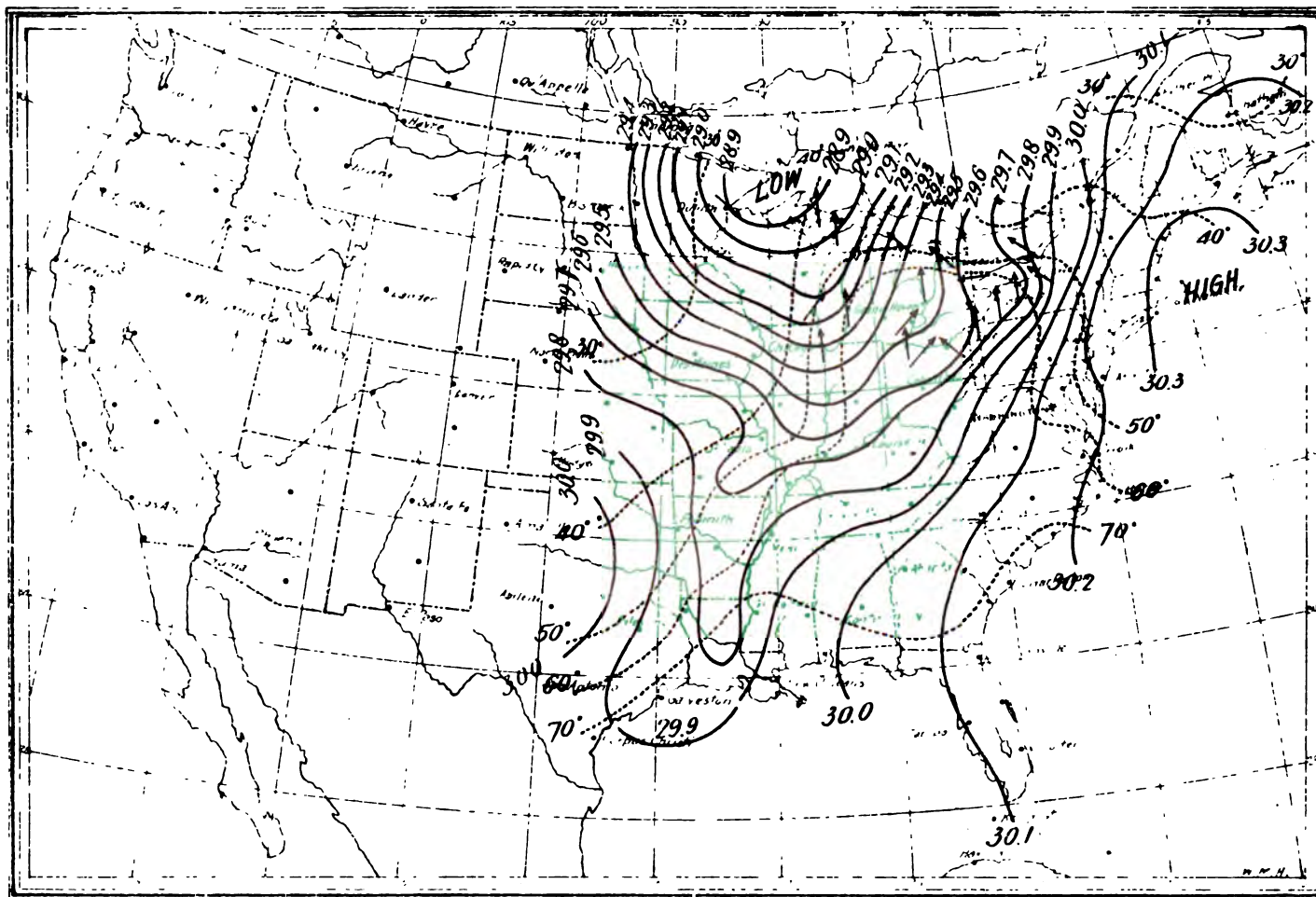


Chart CXXLIV.

April 19, 1880—3 p. m.

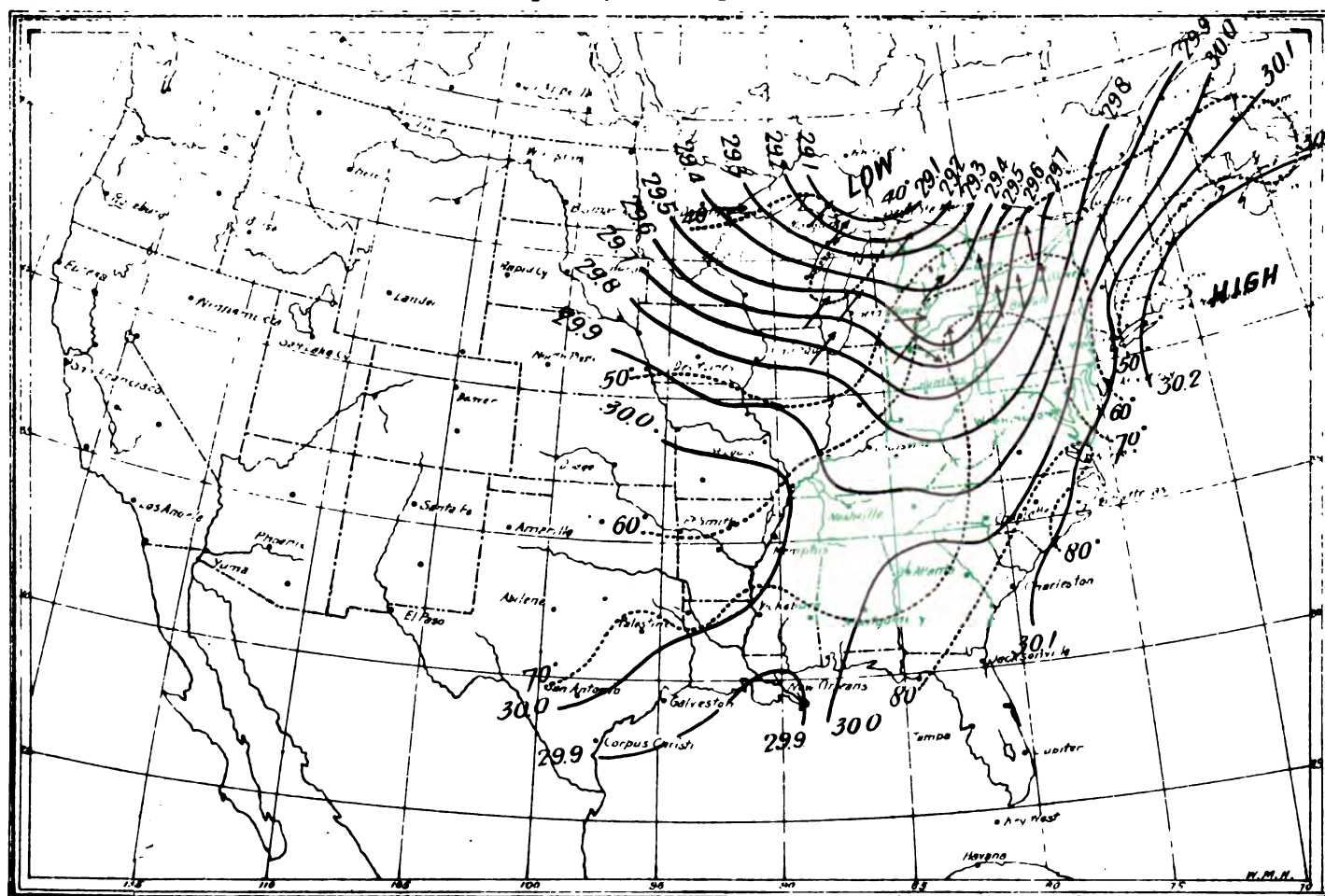


Chart CXXLV.

April 9, 1888—7 a. m.

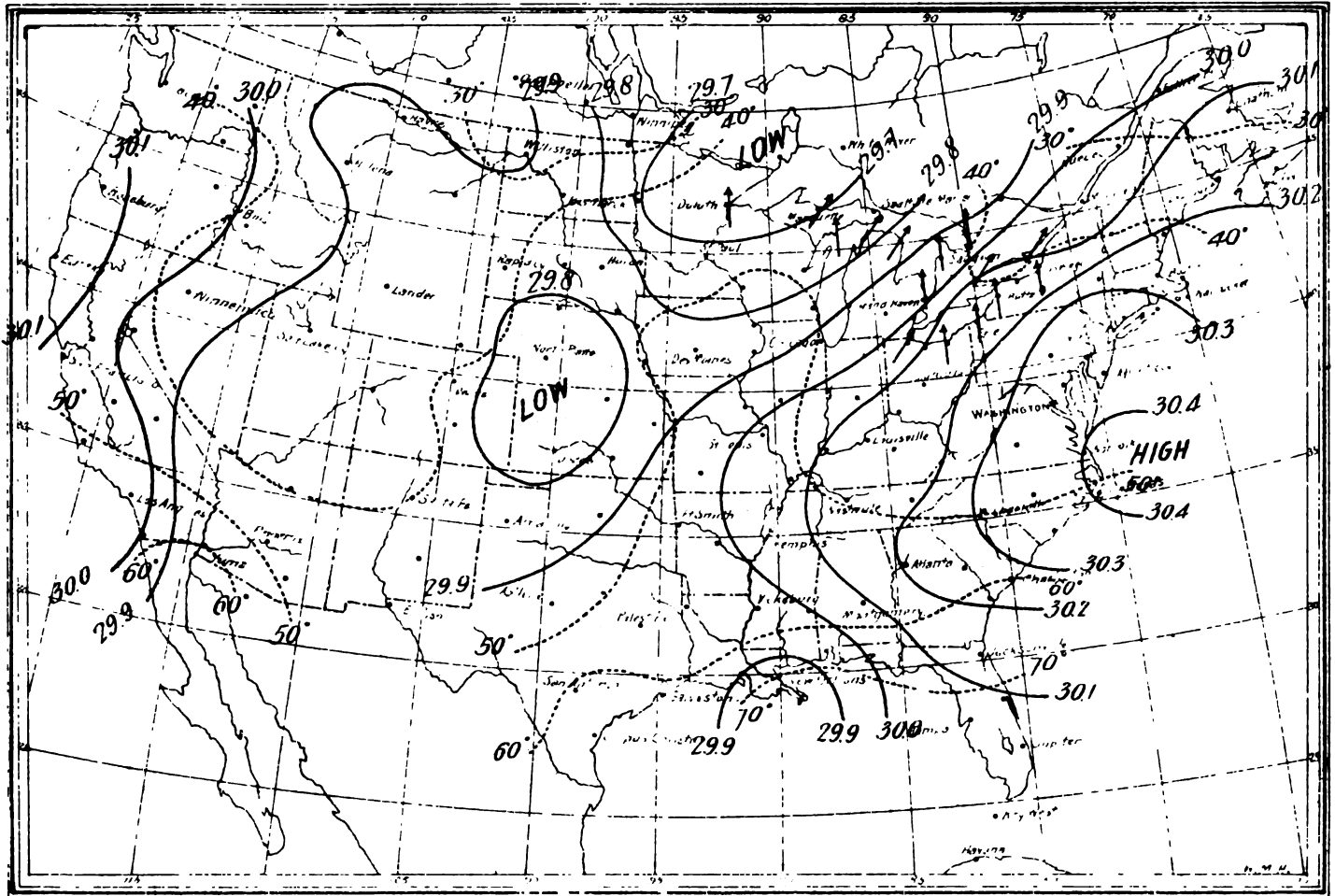
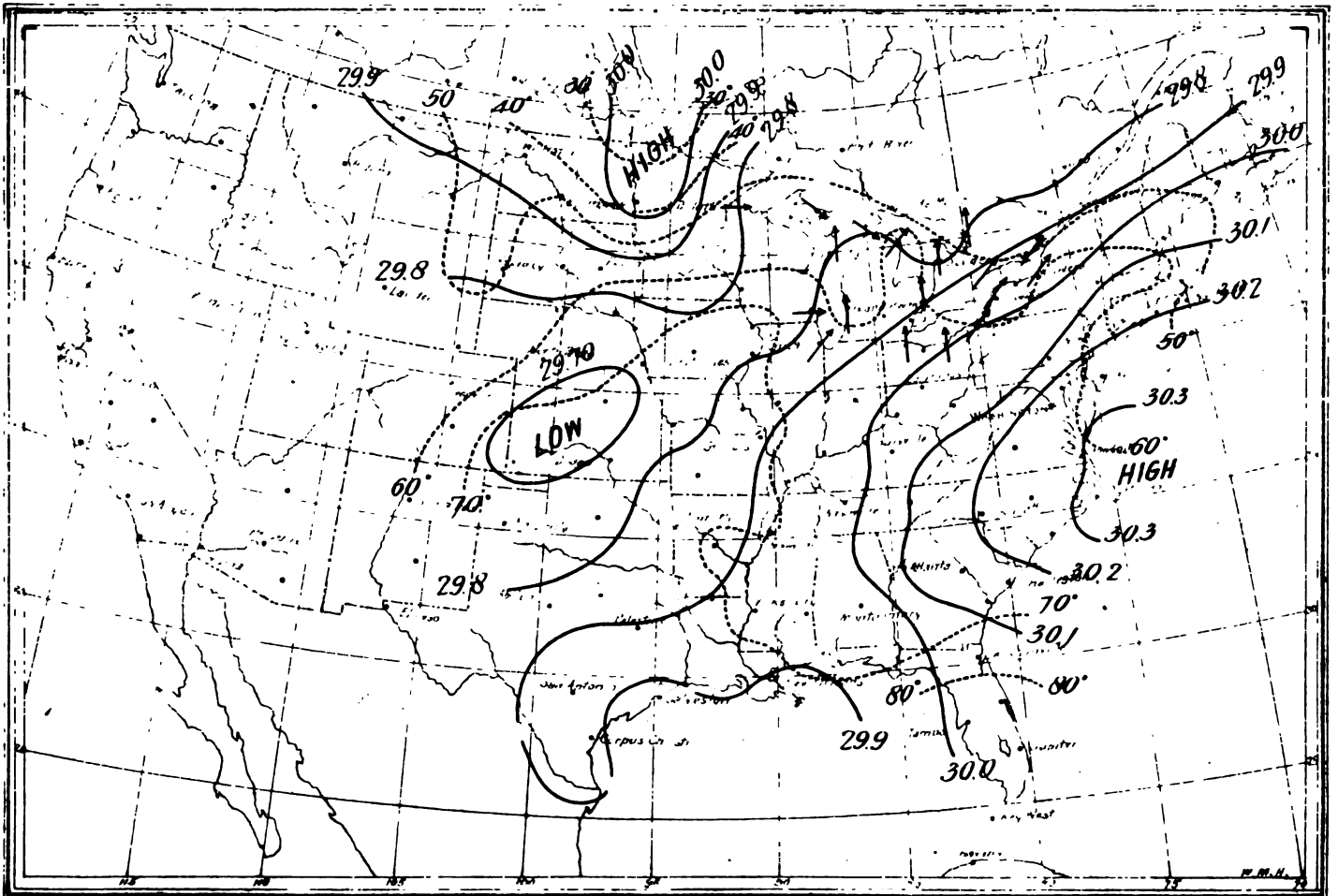


Chart CXXLVI.

April 9, 1888—3 p. m.



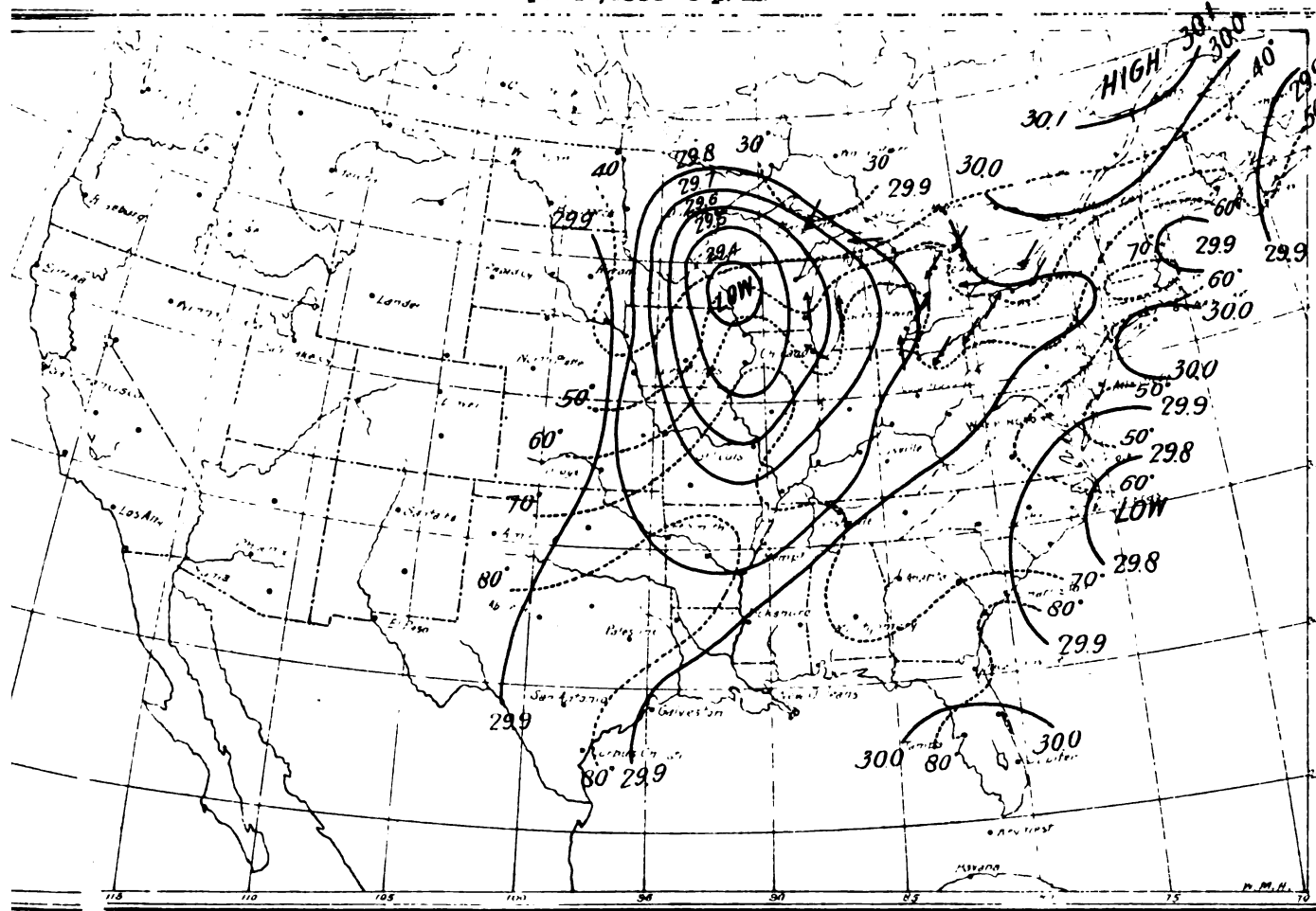
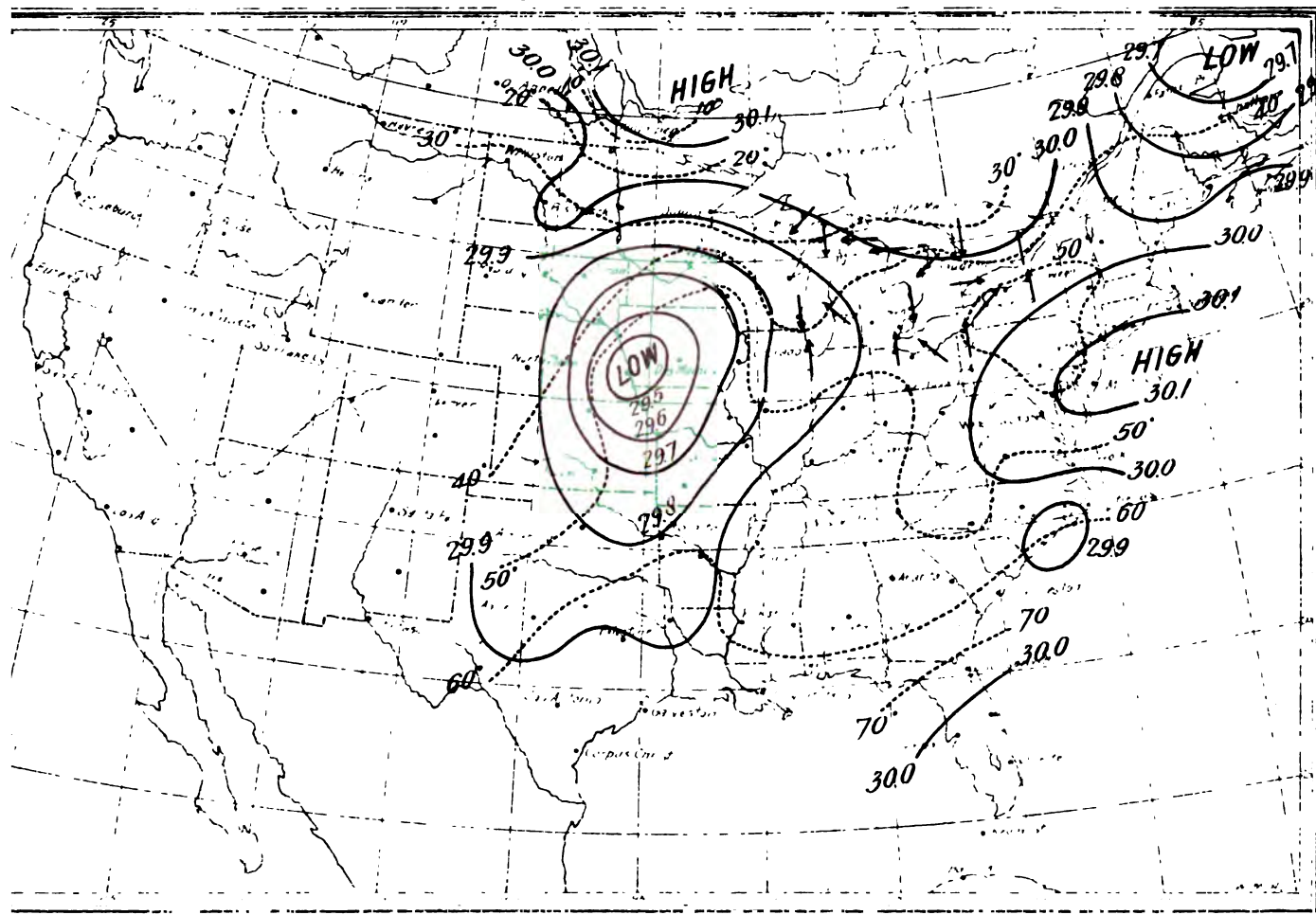


Chart COXLIX.

April 14, 1884—7 a. m.

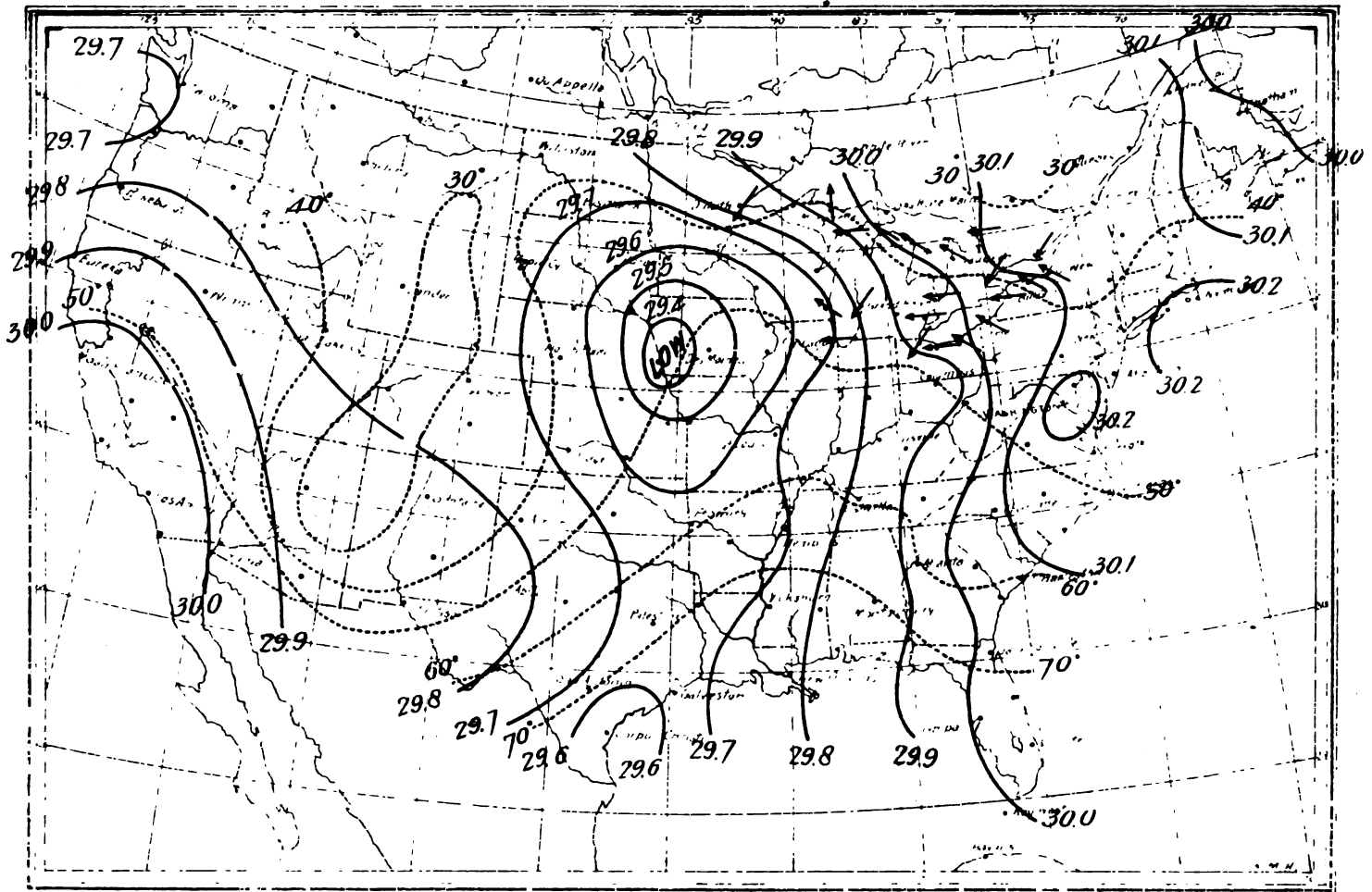


Chart CCL.

April 14, 1884—8 p. m.

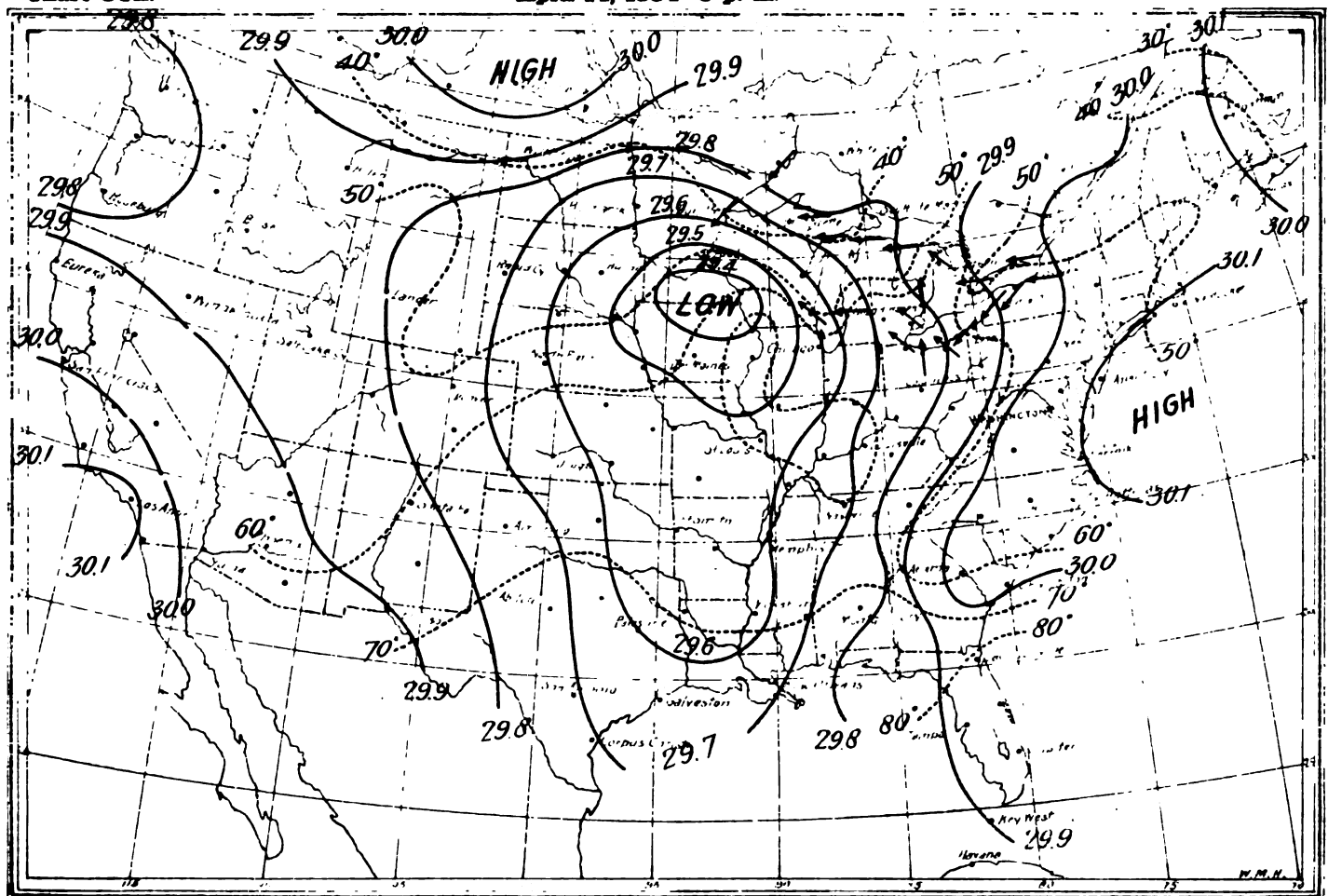


Chart CCLL

April 15, 1894-7 a. m.

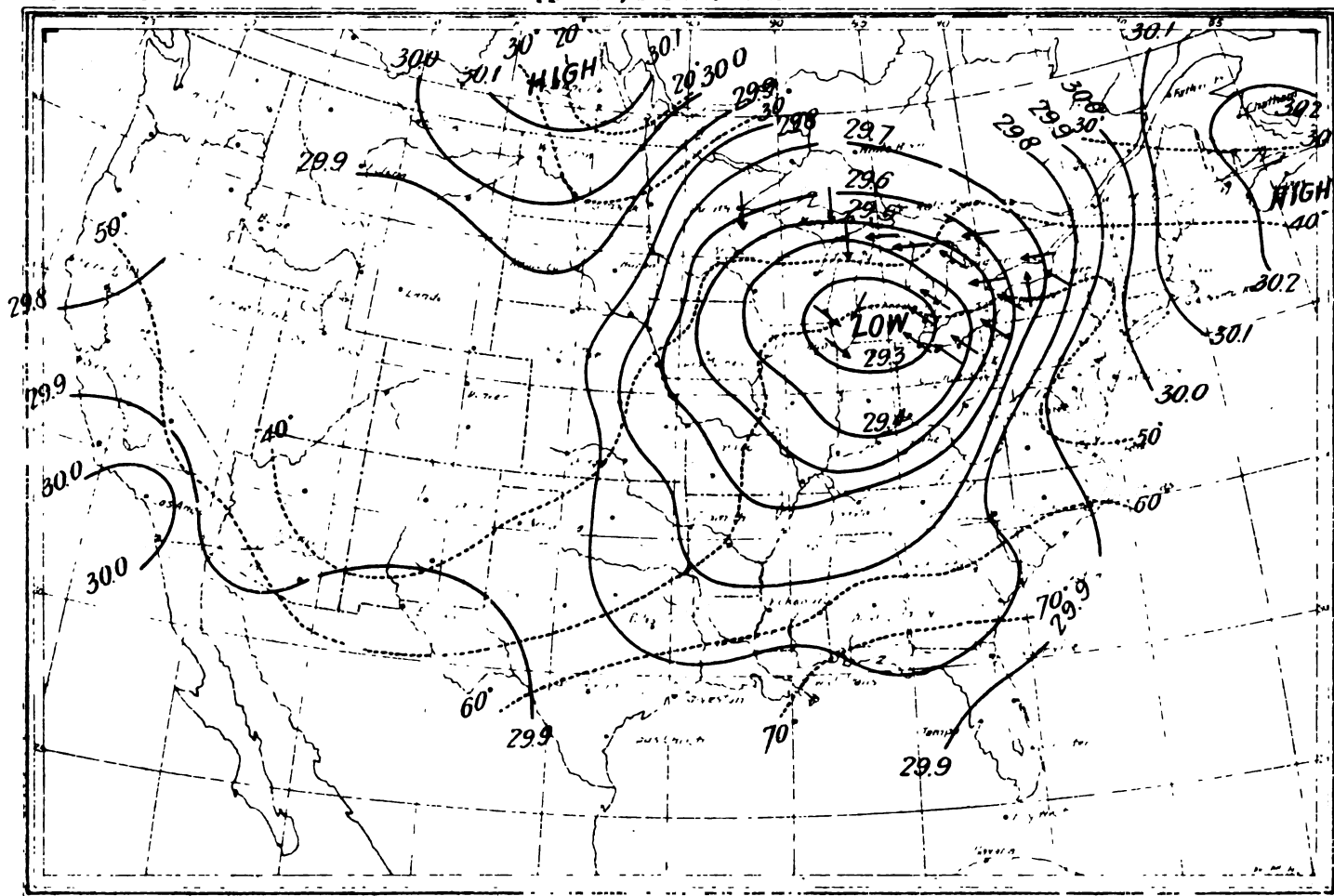


Chart CCLL

April 15, 1894-3 p. m.

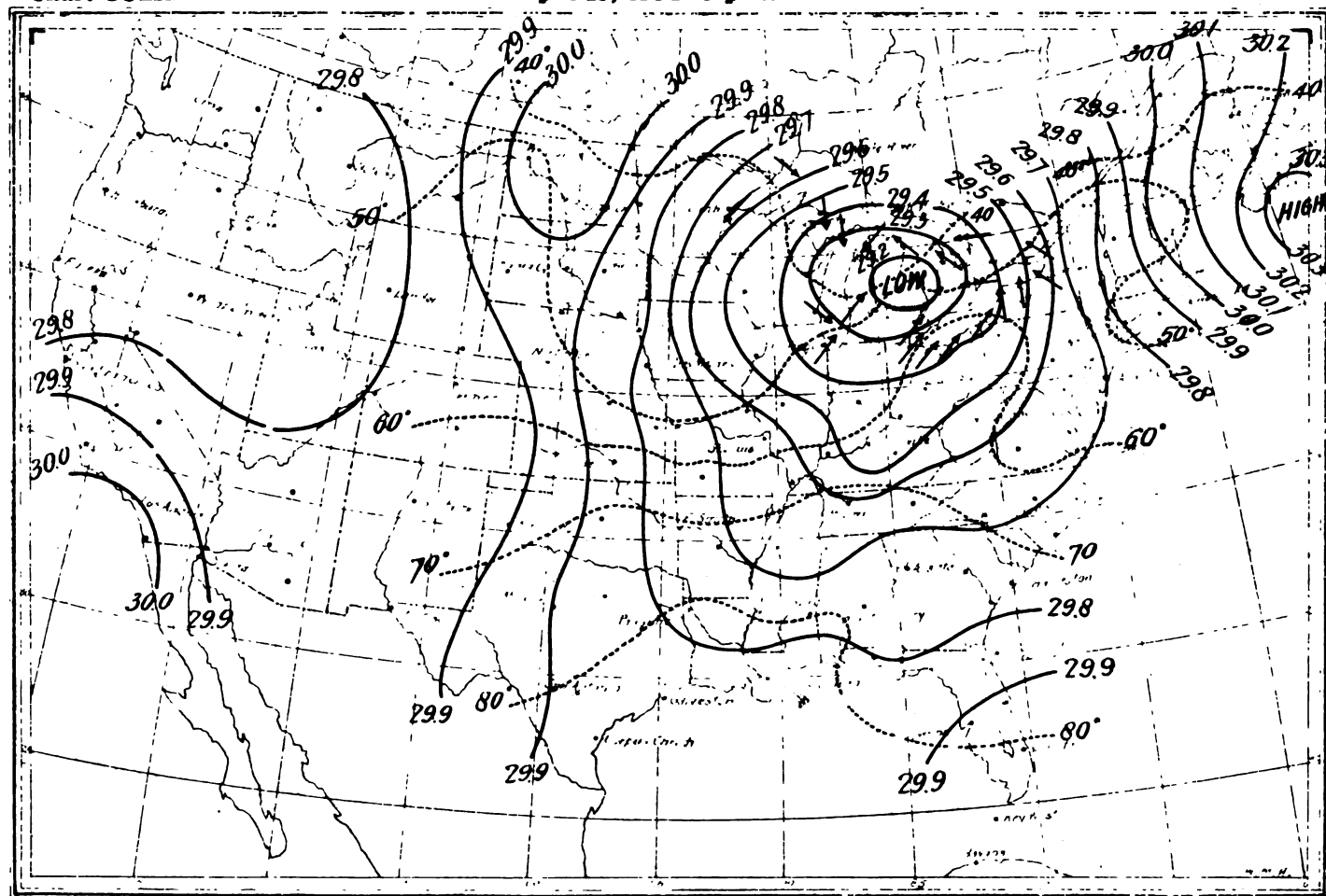


Chart CCLIII.

April 27, 1884—7 a. m.

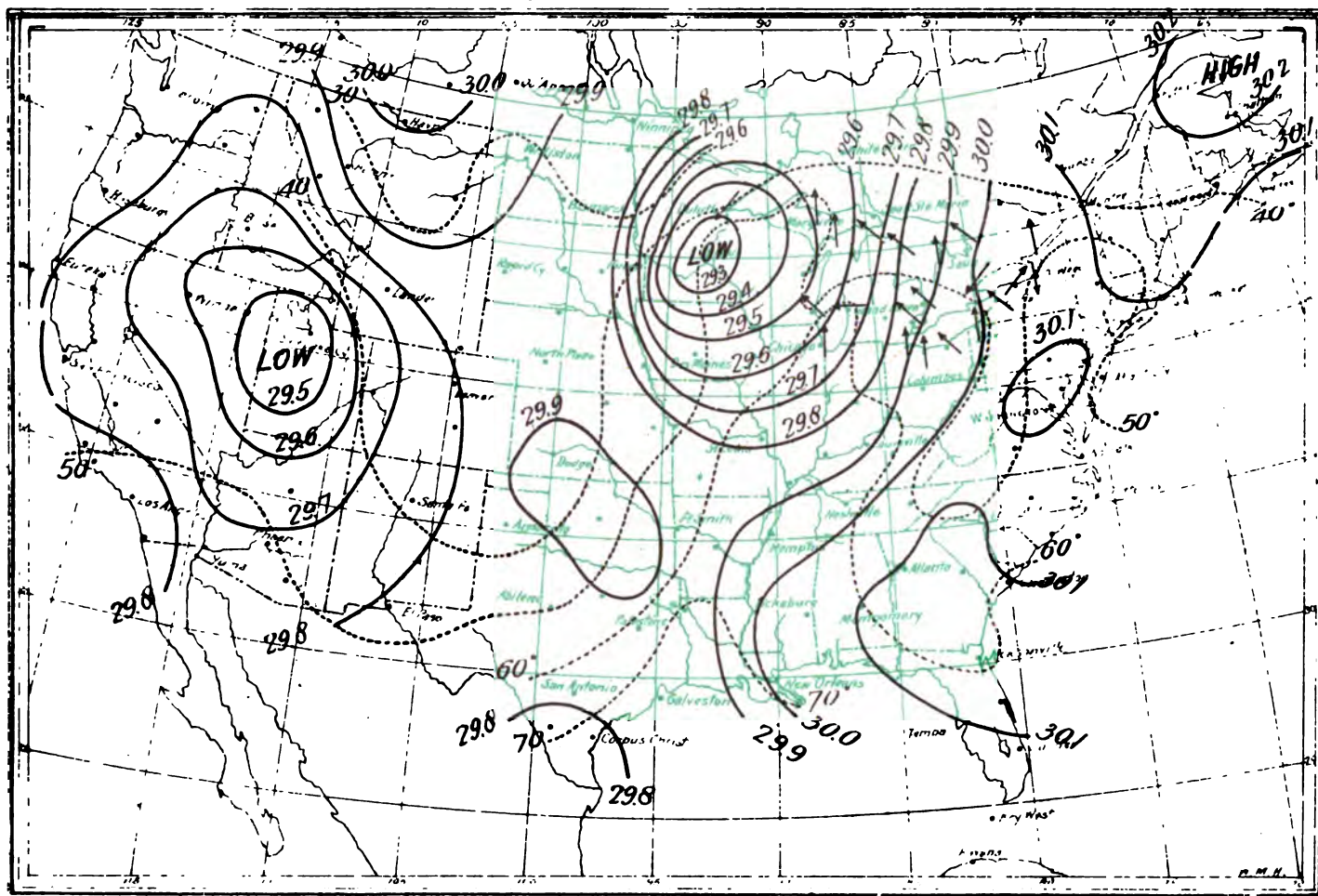


Chart CCLIV.

April 27, 1884—3 p. m.

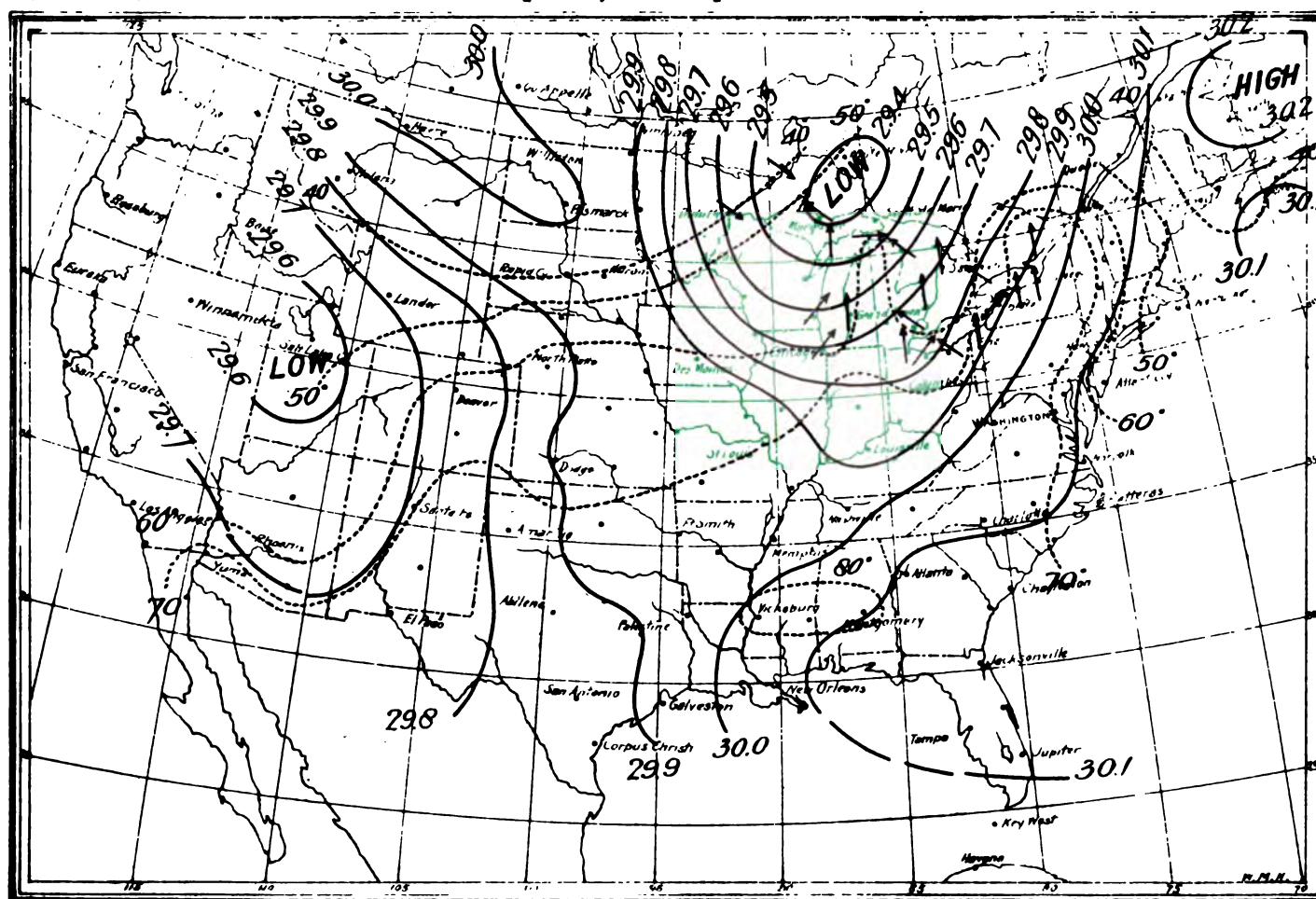


Chart COLV.

April 28, 1884—7 a. m.

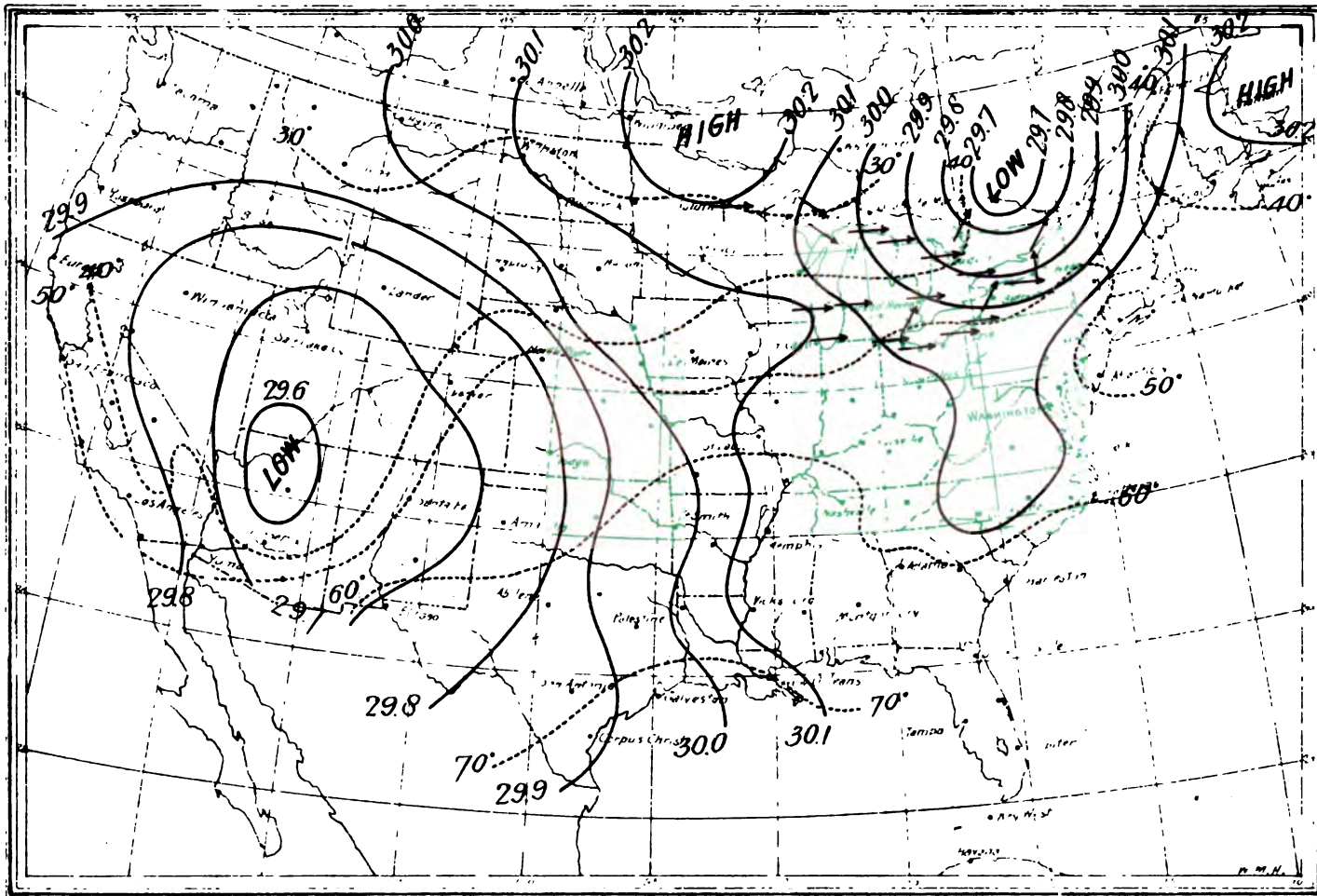


Chart COLVI.

April 28, 1884—3 p. m.

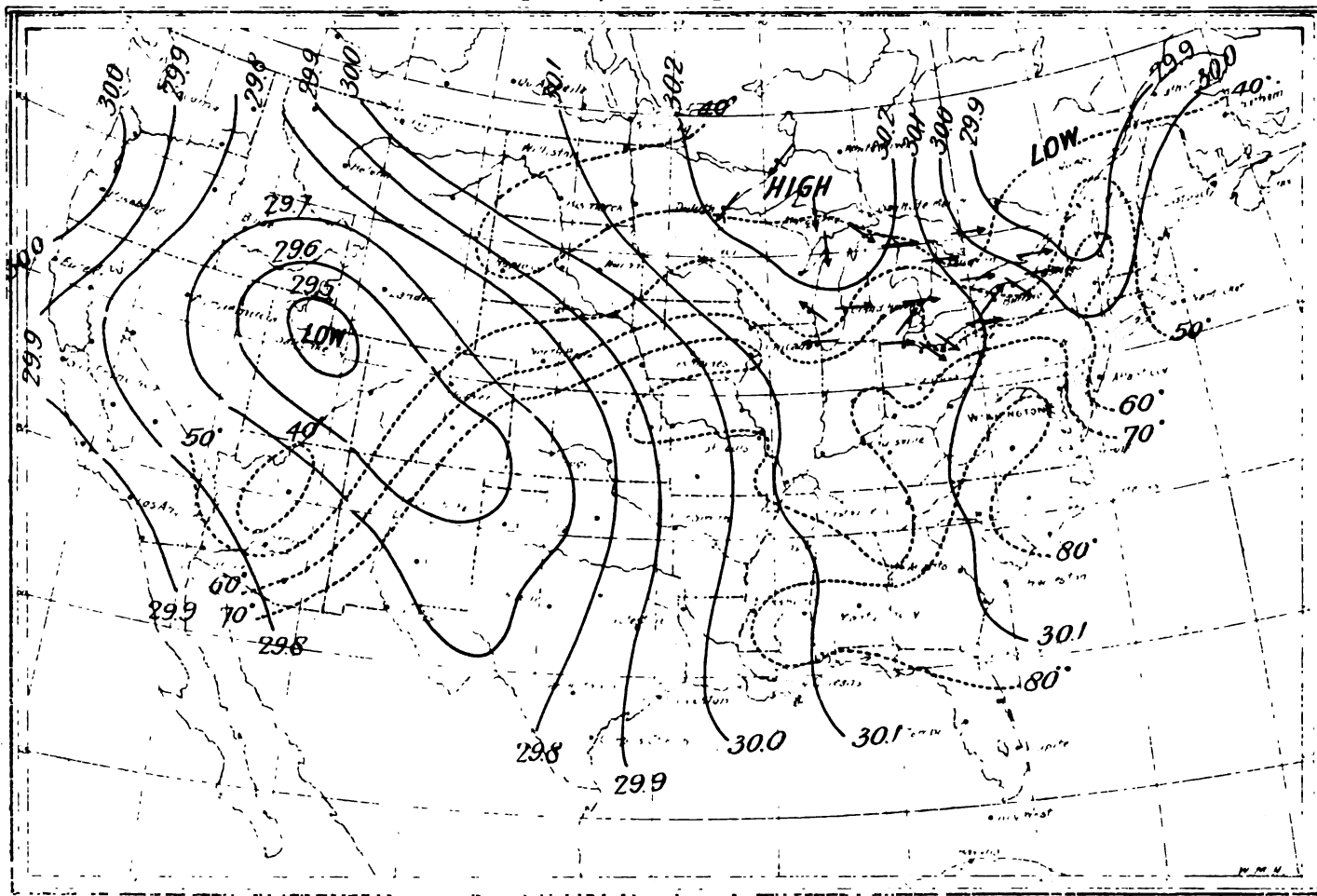


Chart CCLVII.

April 6, 1886—7 a. m.

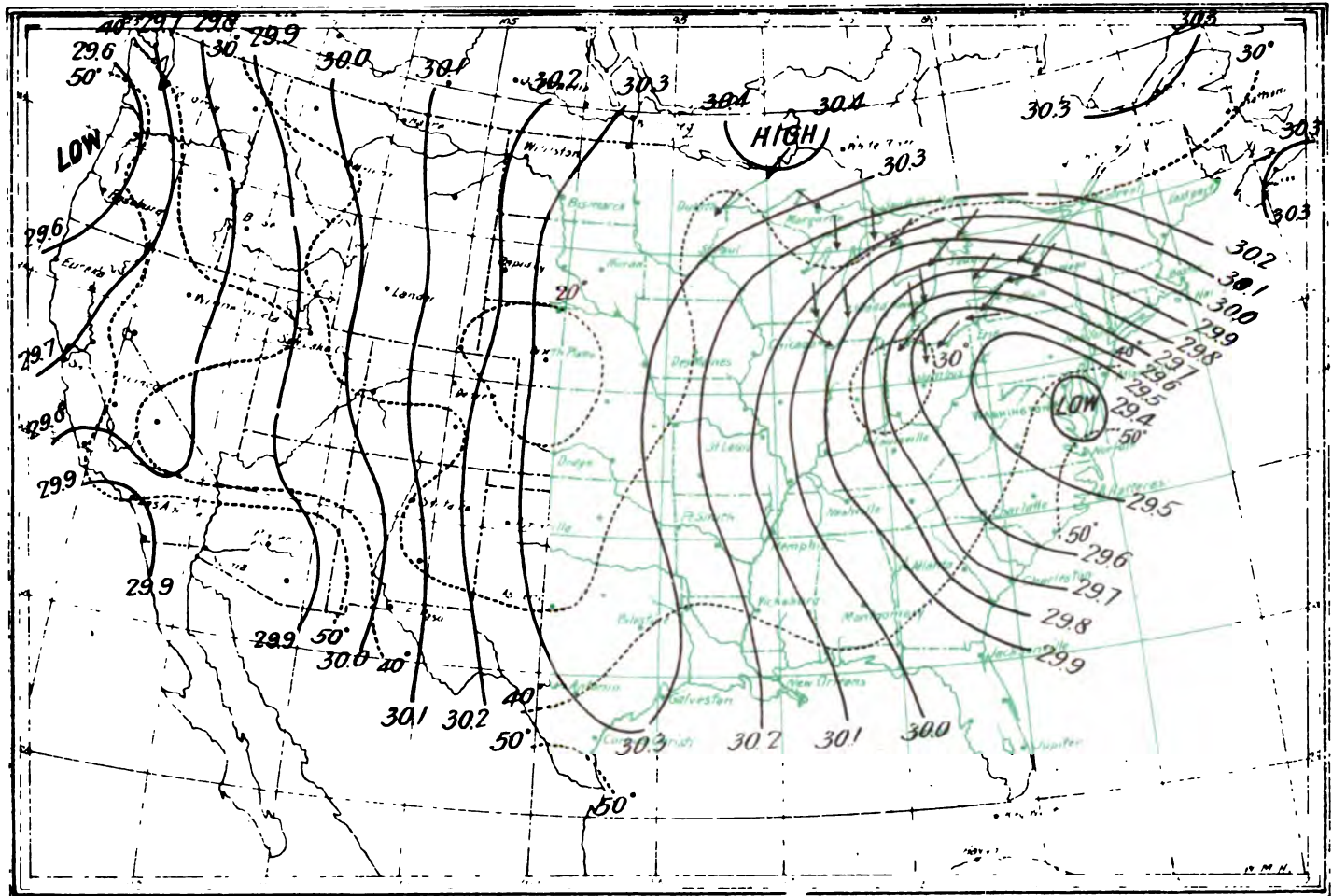


Chart CCLVIII.

April 6, 1886—3 p. m.

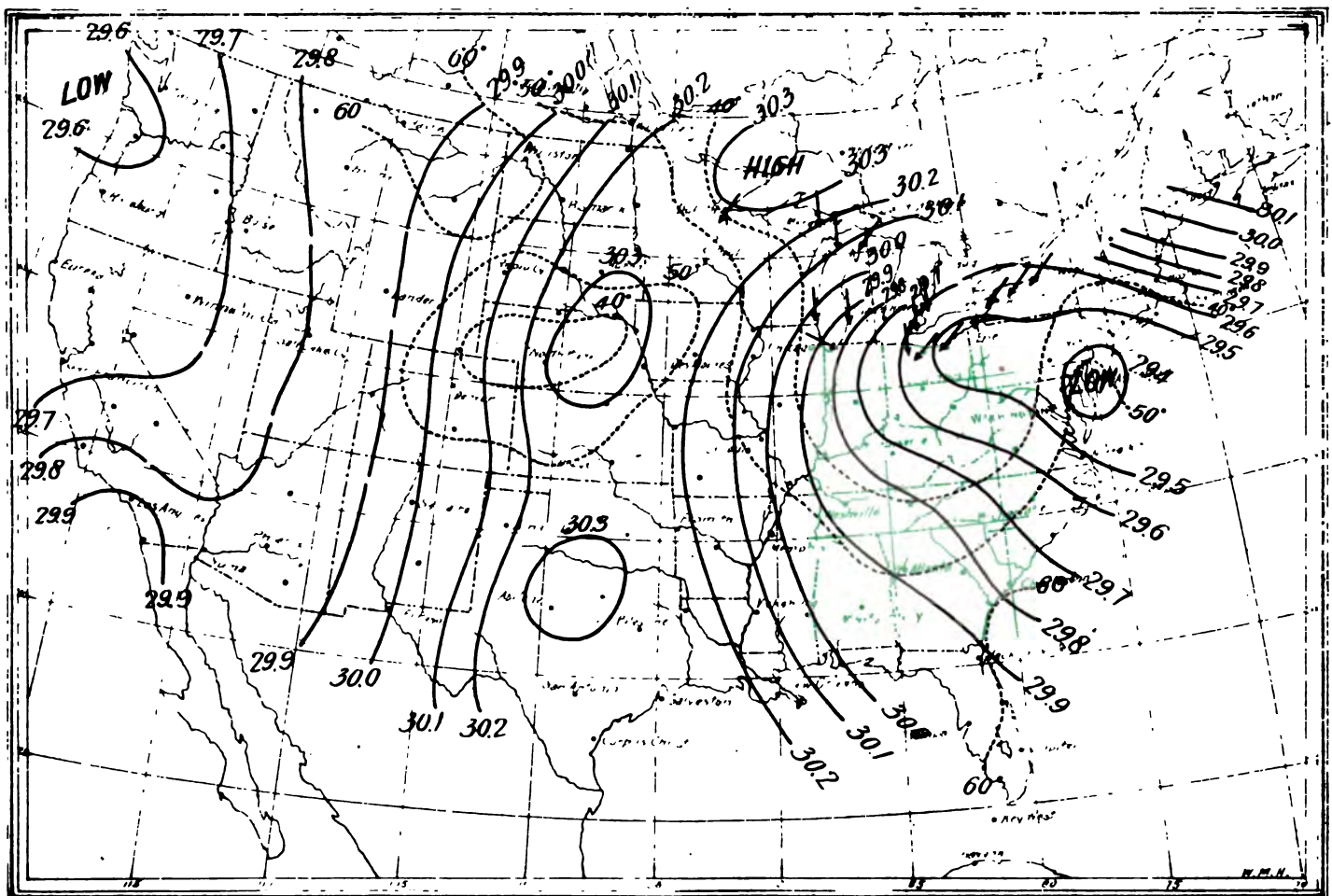


Chart COLIX.

April 7, 1886—7 a. m.

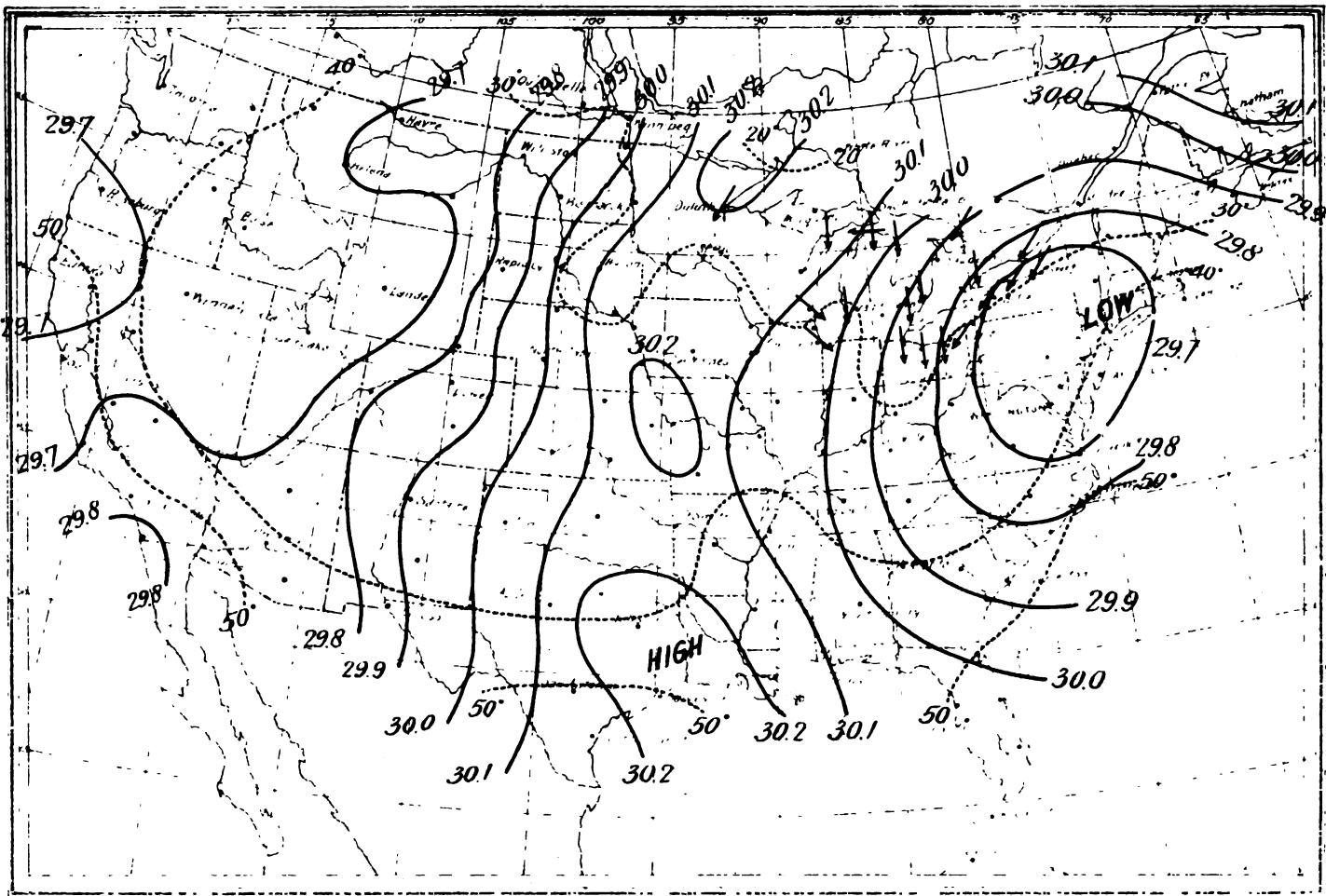


Chart COLIX.

April 7, 1886—8 p. m.

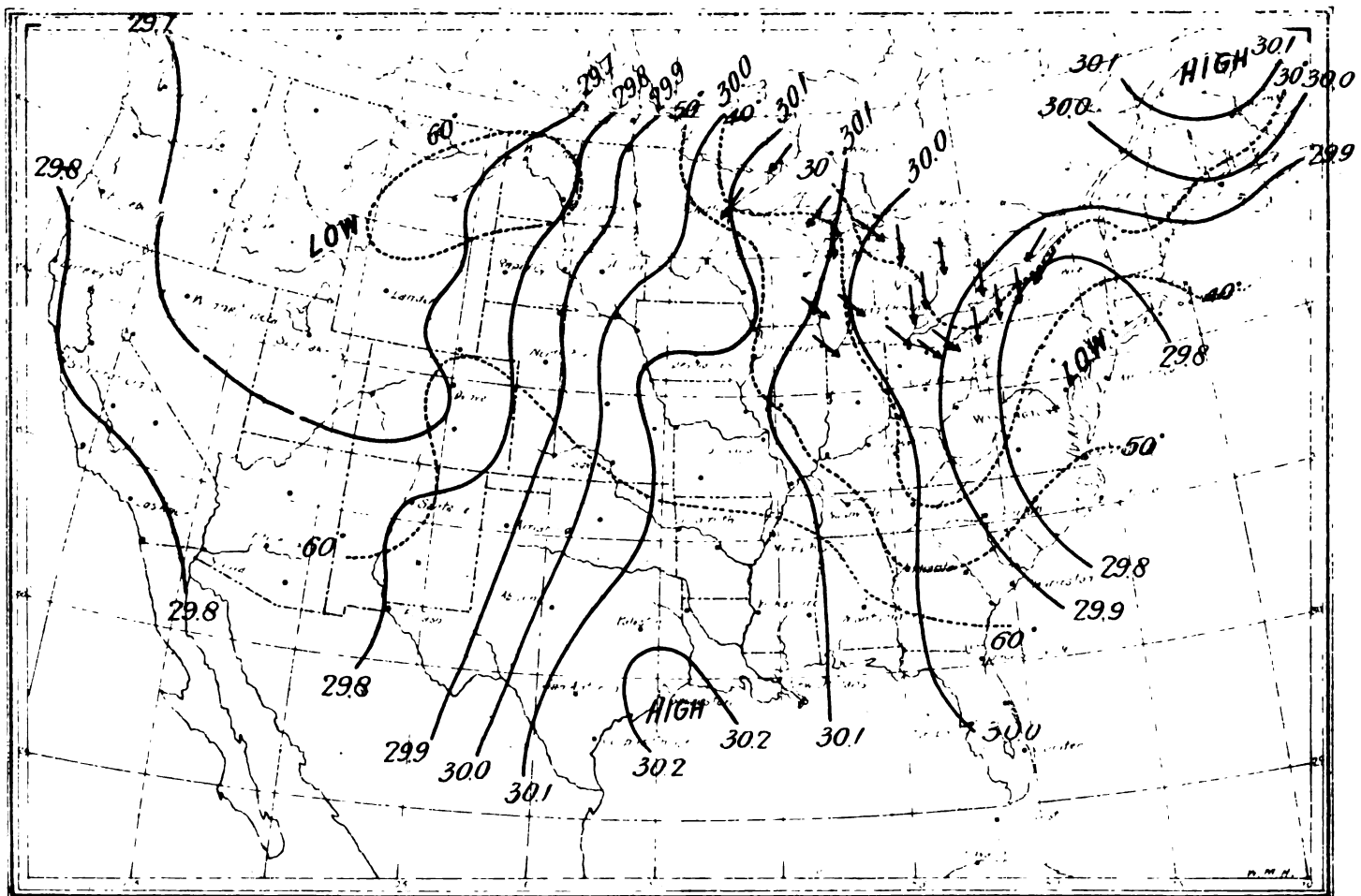


Chart OOLXI.

April 8, 1887—7 a. m.

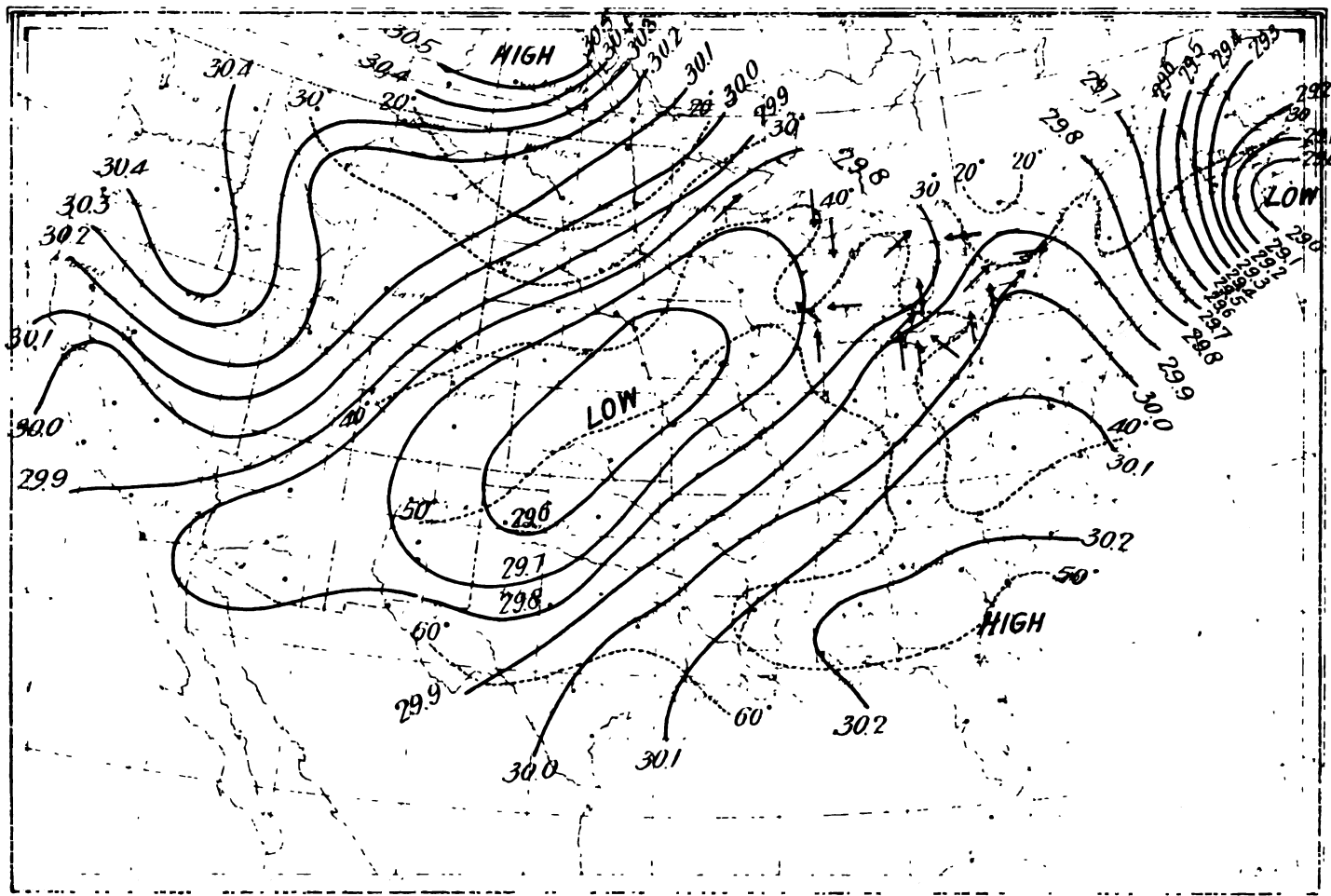


Chart OOLXII.

April 8, 1887—3 p. m.

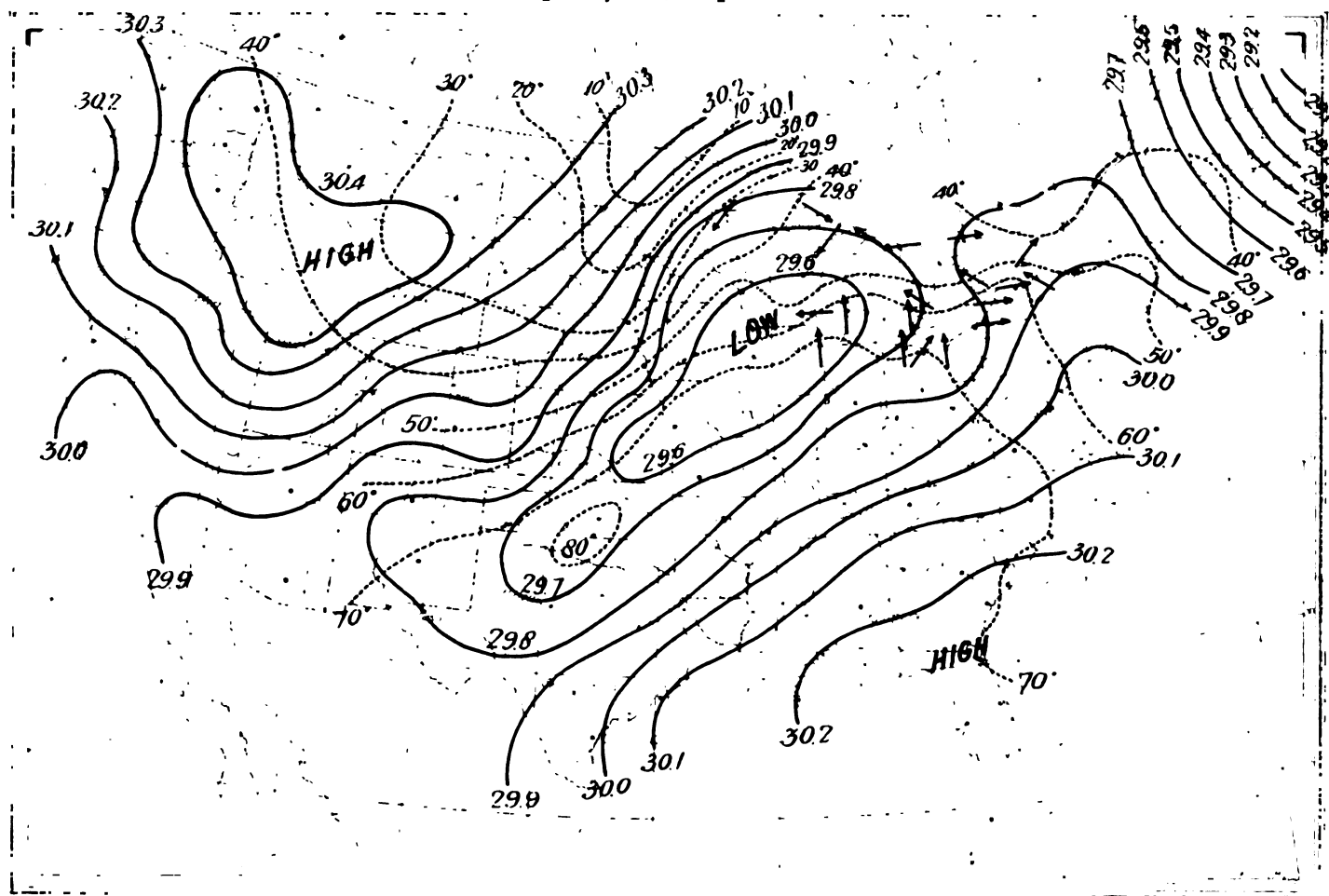


Chart OCLXIII.

April 4, 1887—7 a. m.

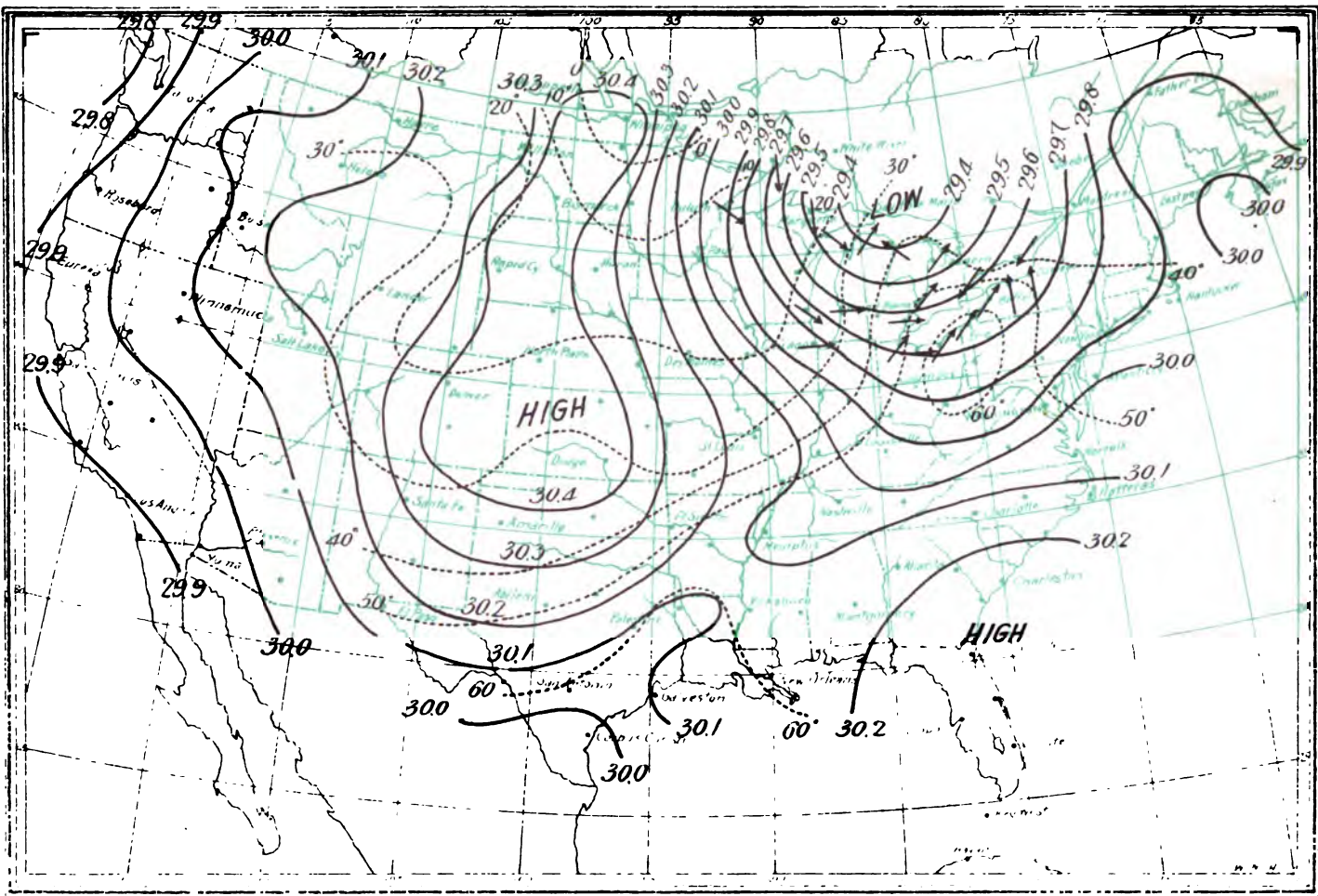
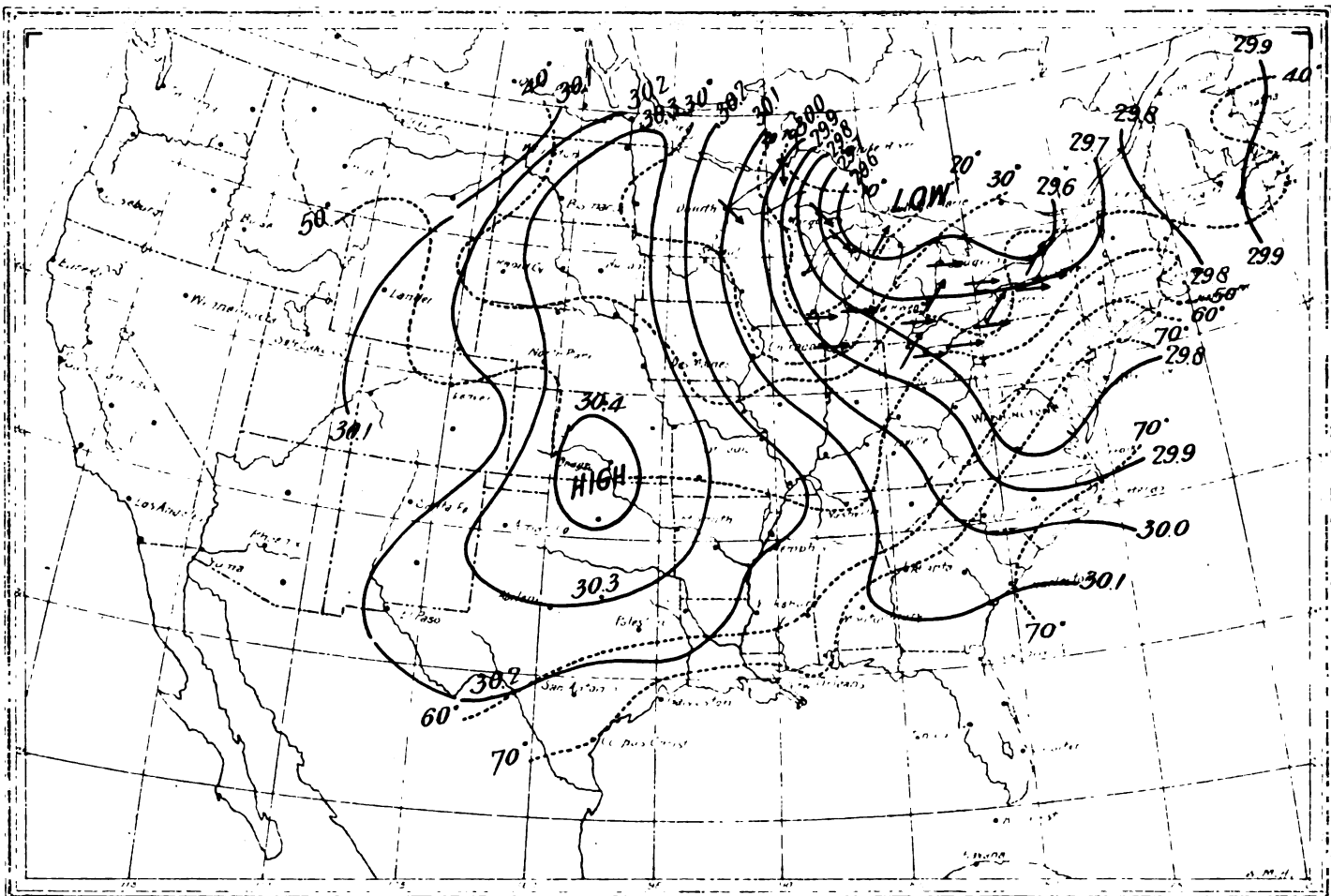


Chart OCLXIV.

April 4, 1887—3 p. m.



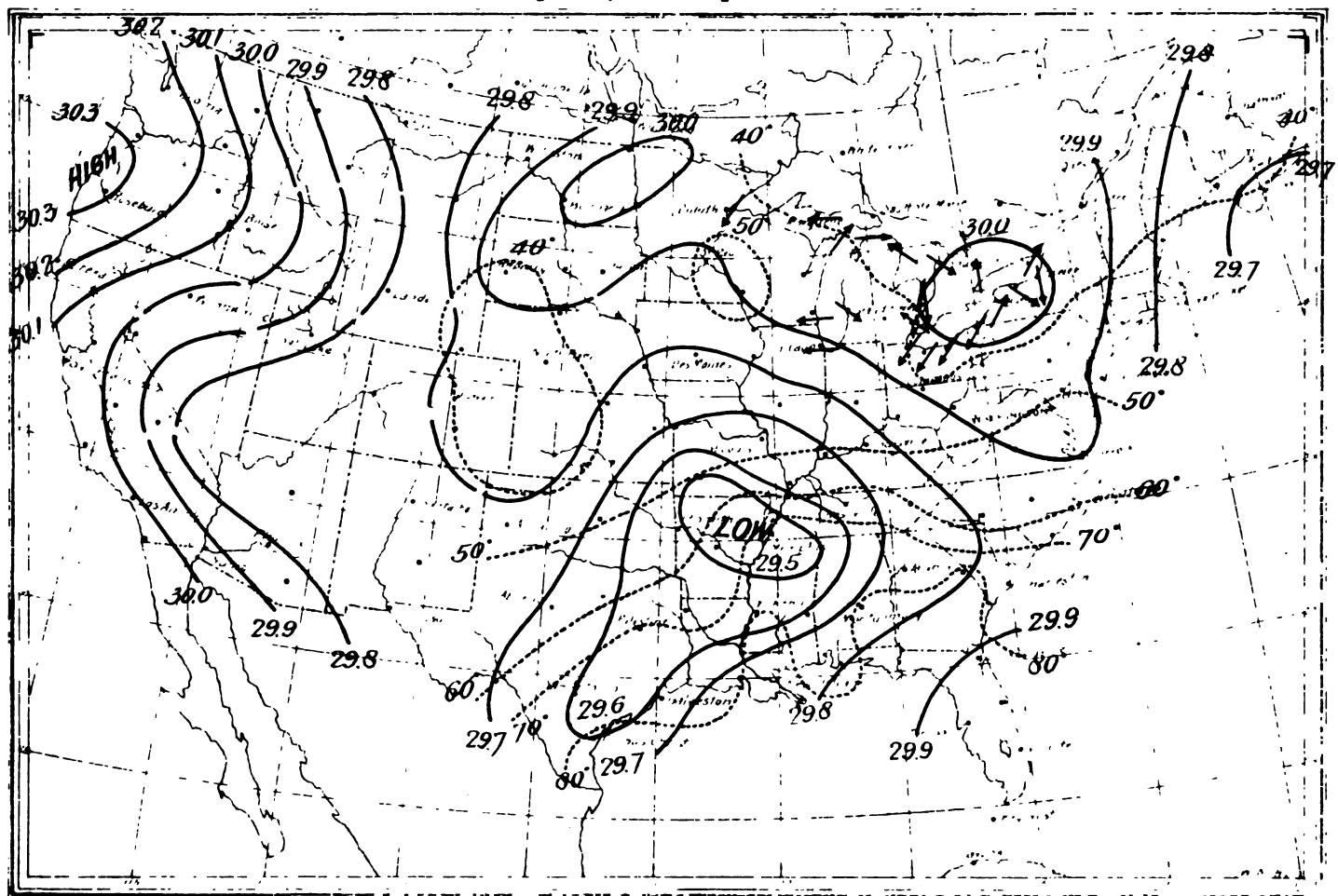
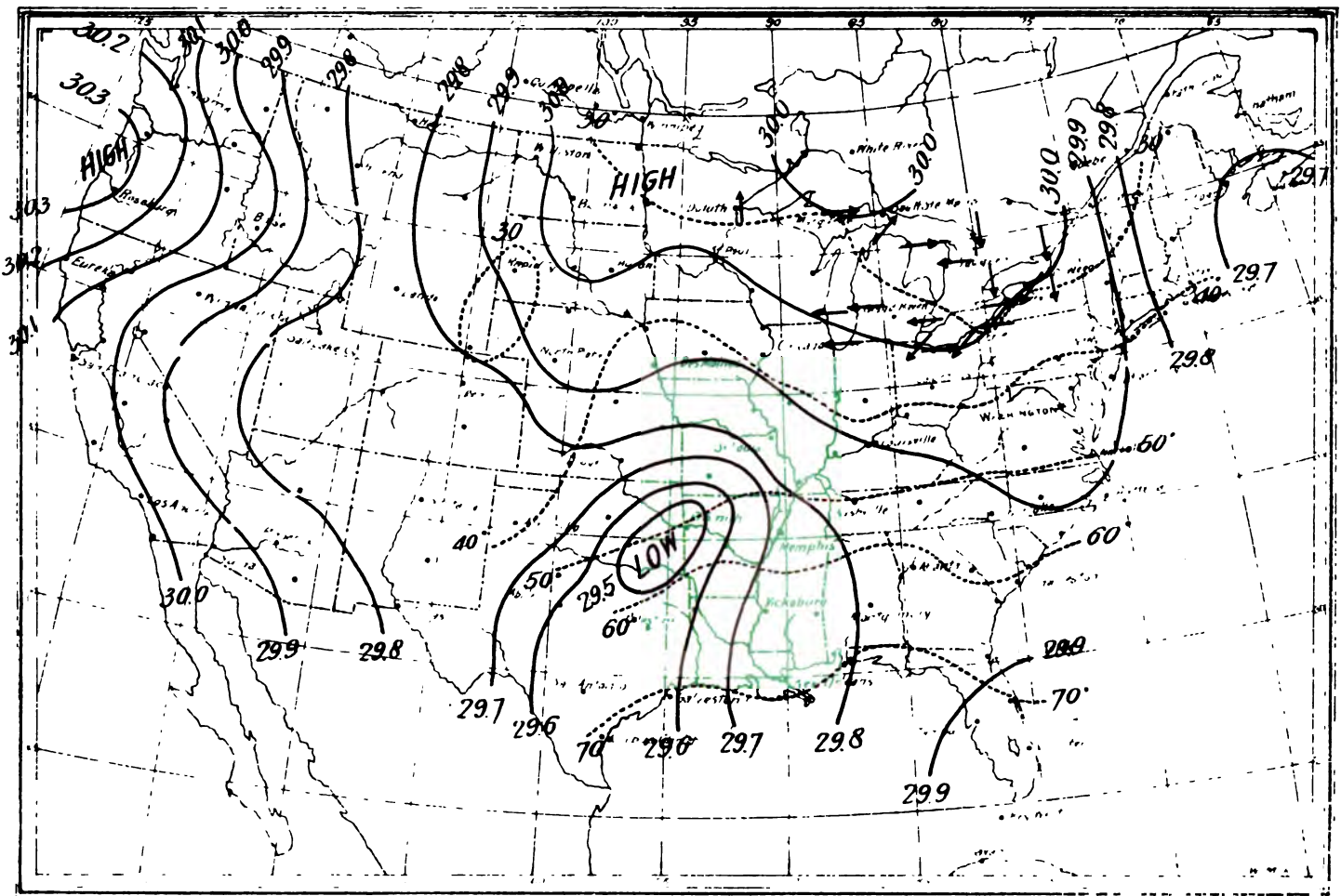


Chart COLXVII.

April 18, 1887—7 a. m.

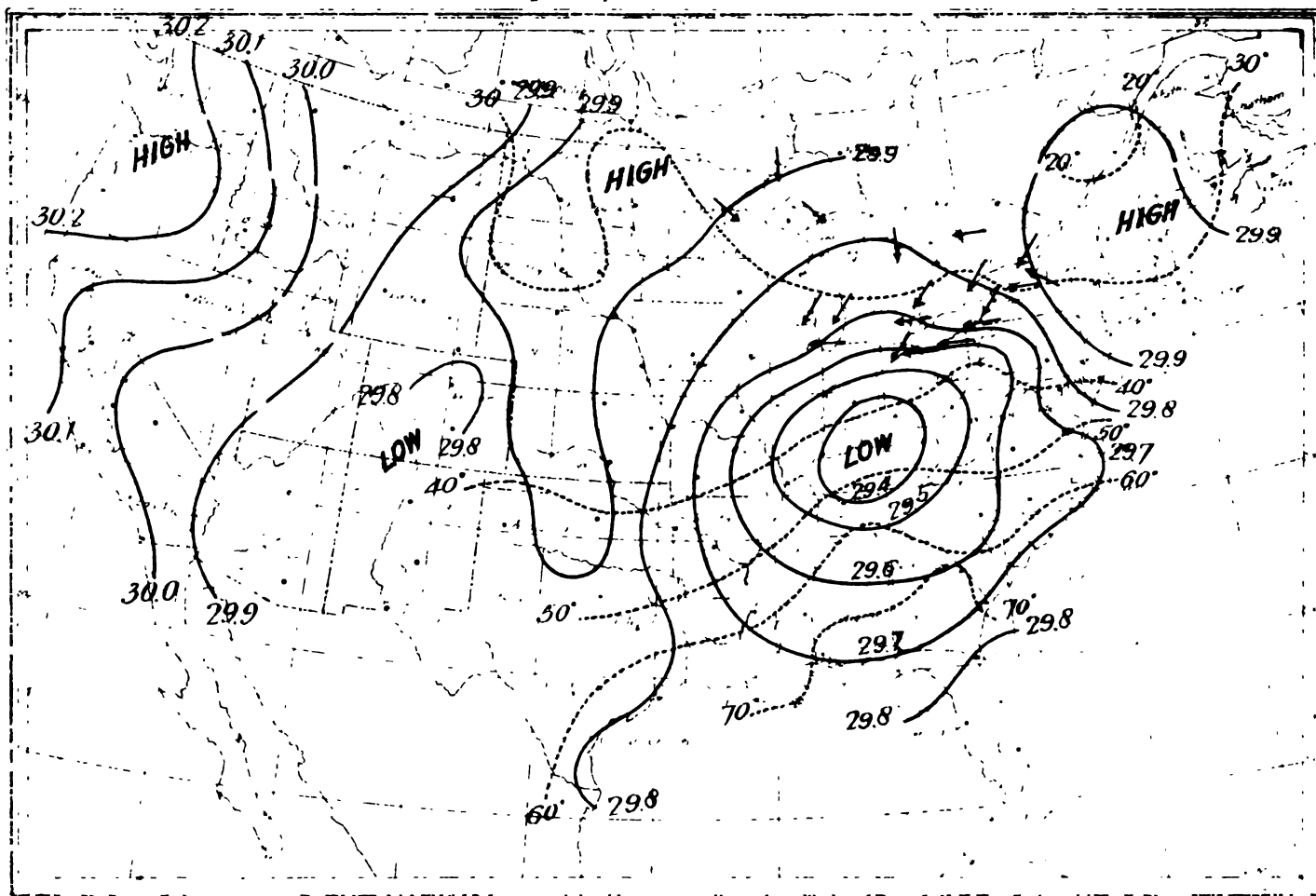


Chart COLXVIII.

April 18, 1887—3 p. m.

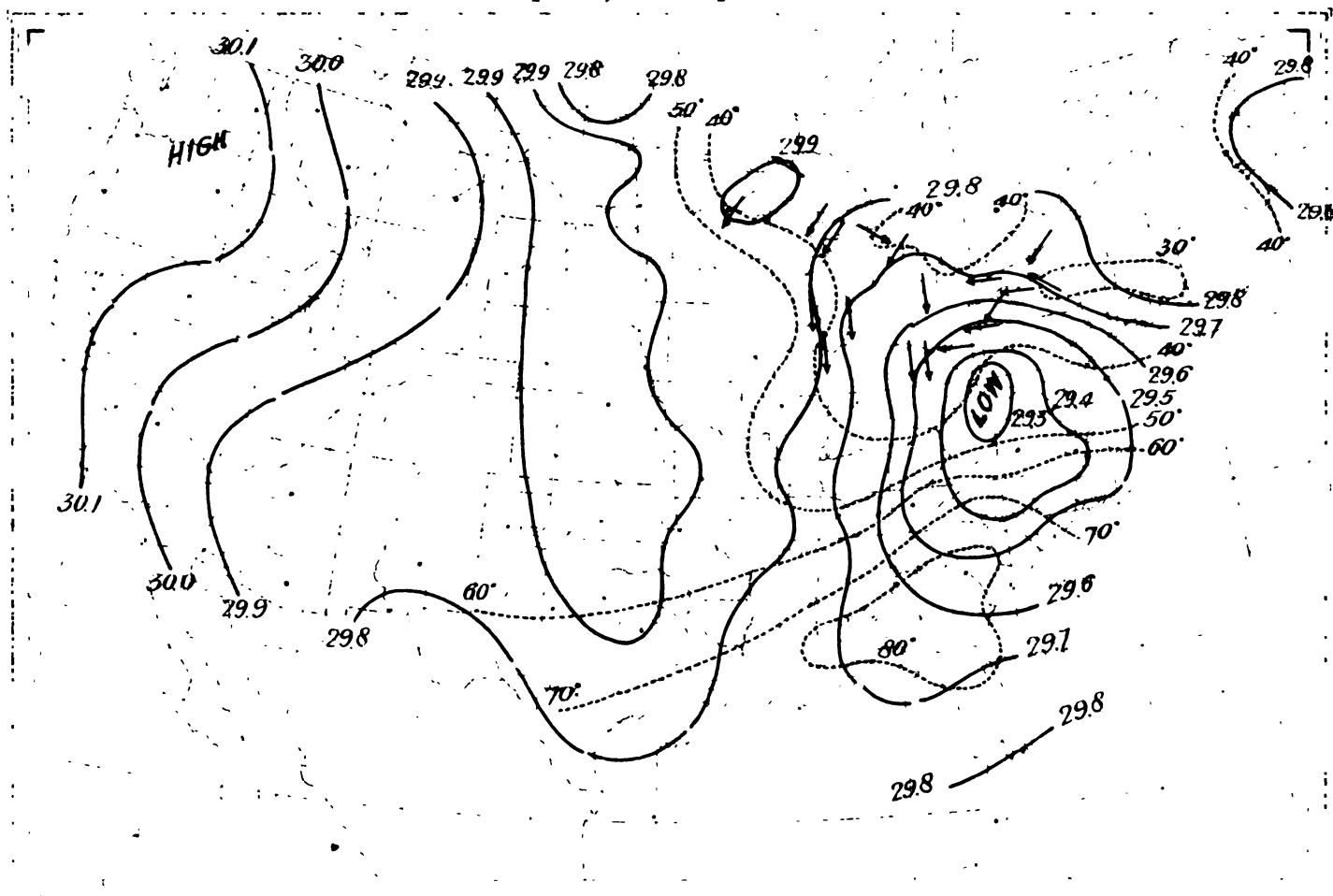


Chart COLXIX.

April 22, 1887—7 a. m.

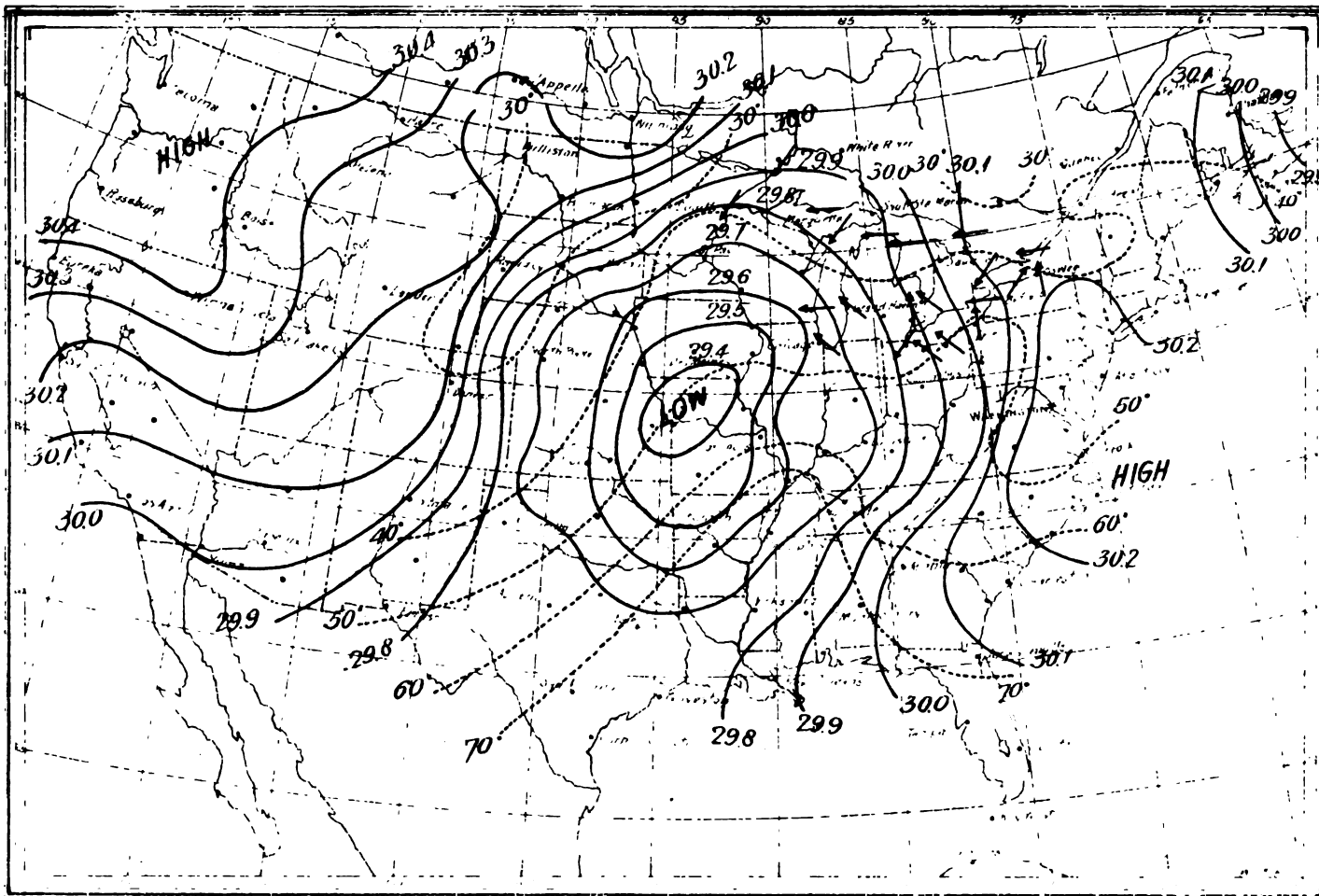


Chart COLXX.

April 22, 1887—3 p. m.

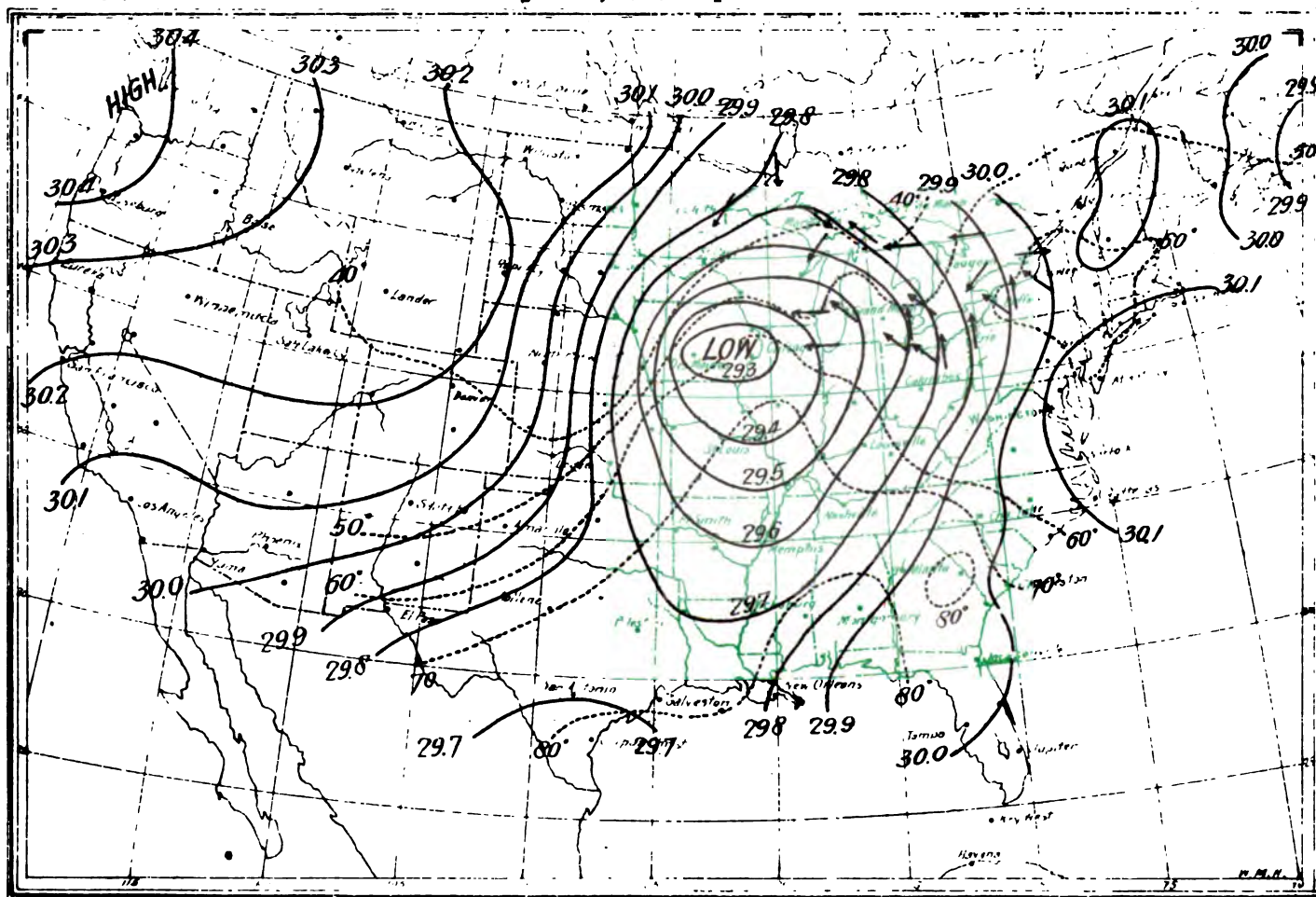


Chart CCLXXIII.

April 8, 1890—8 a. m.

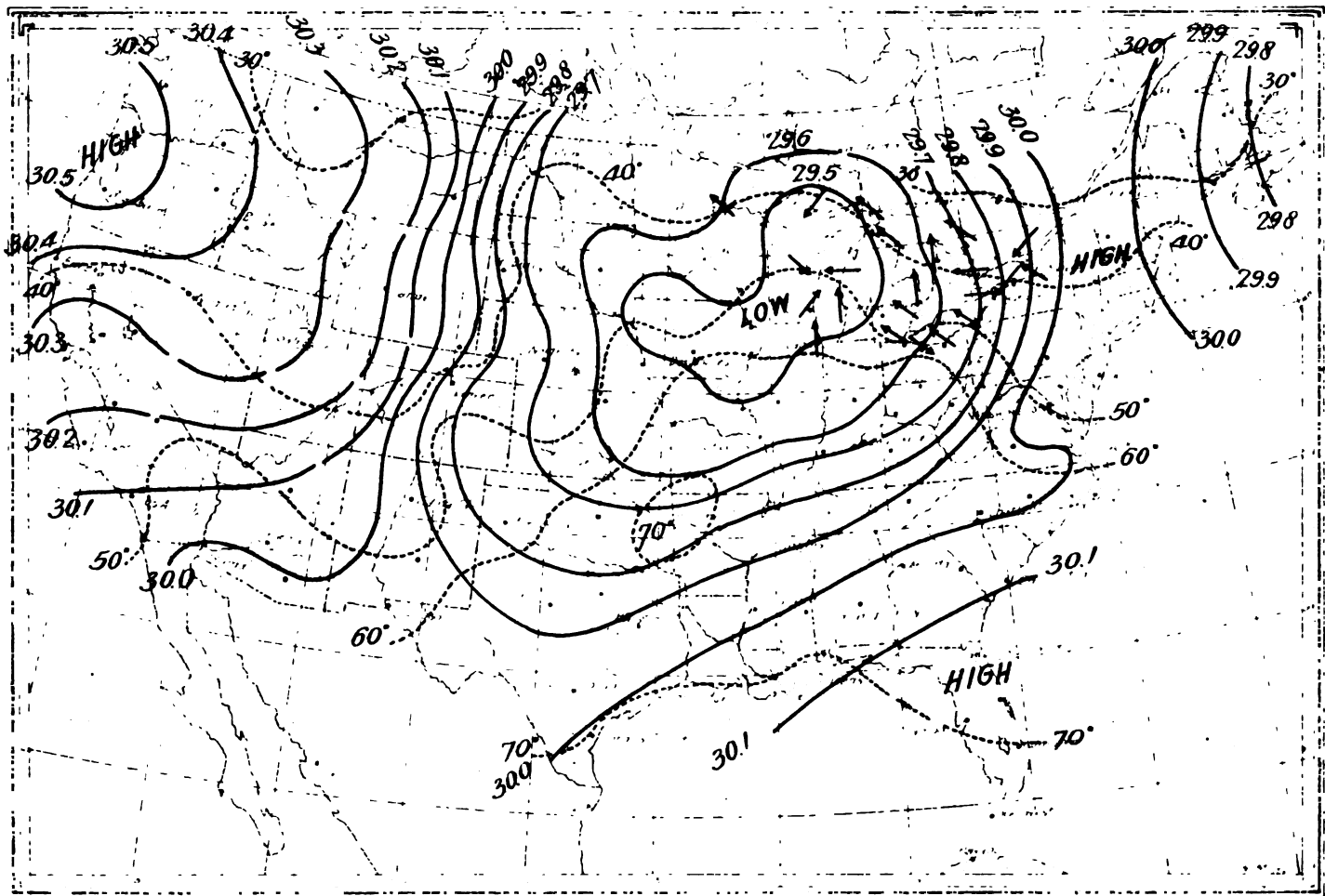


Chart CCLXXIV.

April 8, 1890—8 p. m.

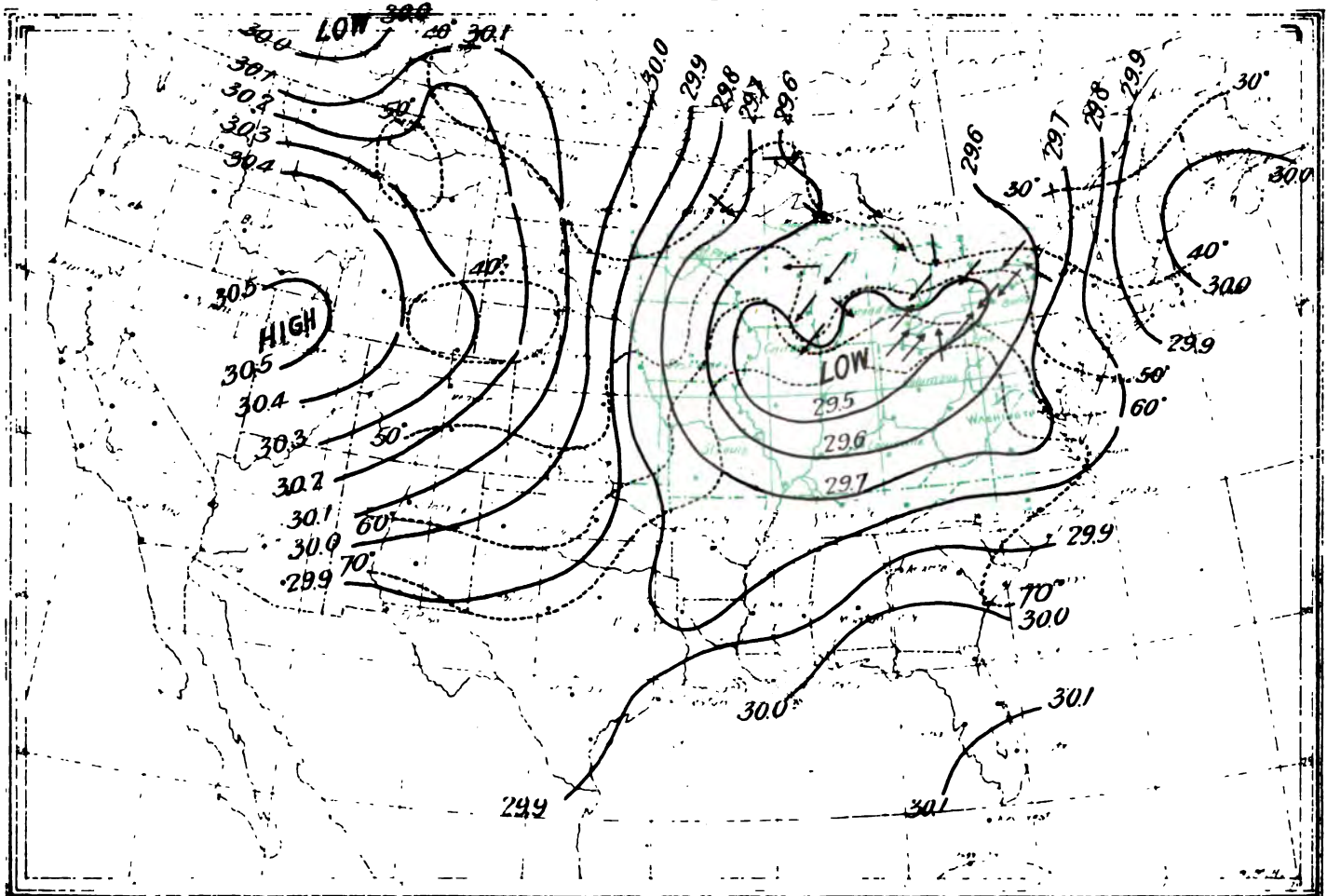


Chart COLXXV.

April 9, 1890—8 a. m.

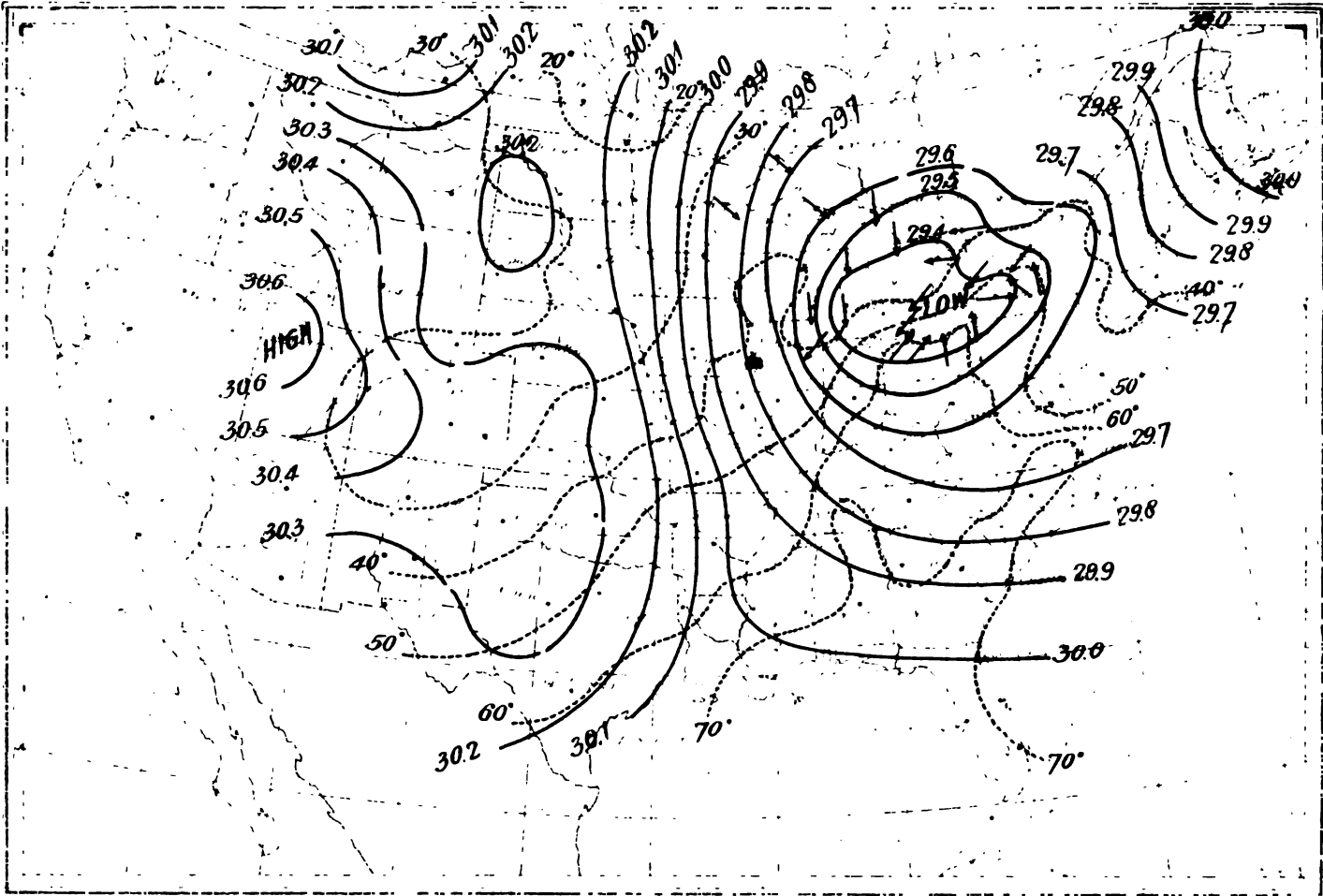


Chart COLXXVI.

April 9, 1890—8 p. m.

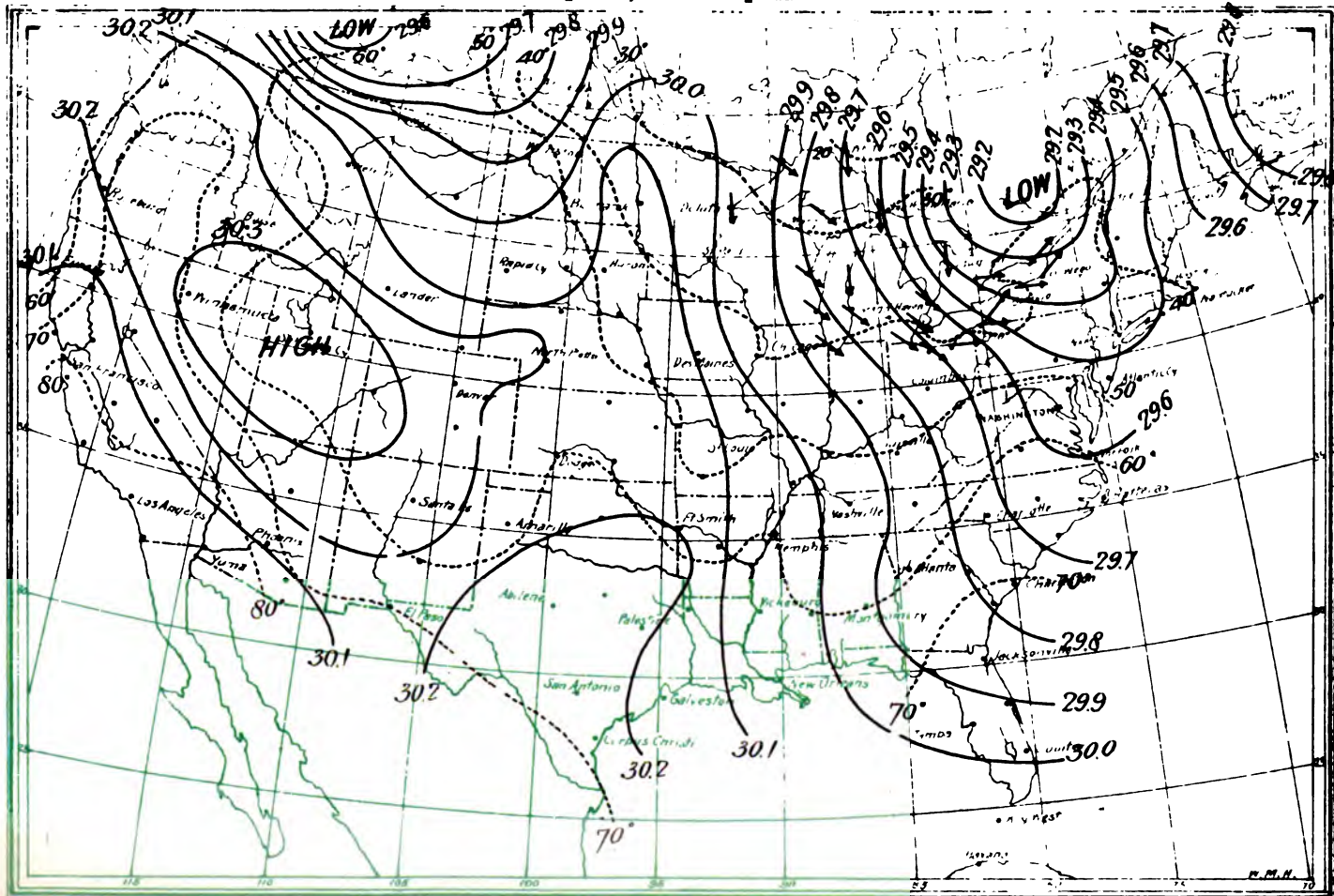


Chart COLXXVII.

April 19, 1893—8 a. m.

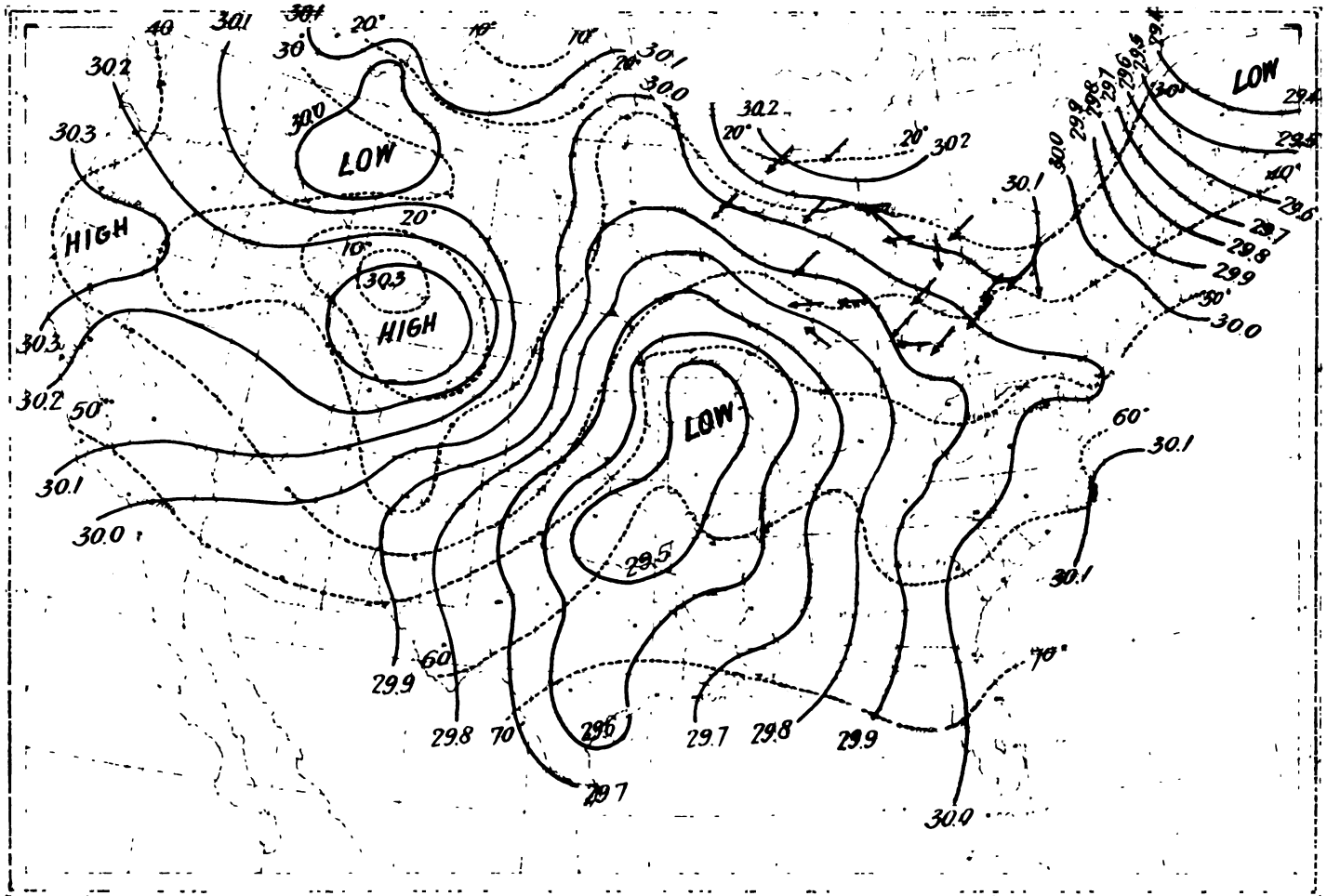


Chart COLXXVIII.

April 19, 1893—8 p. m.

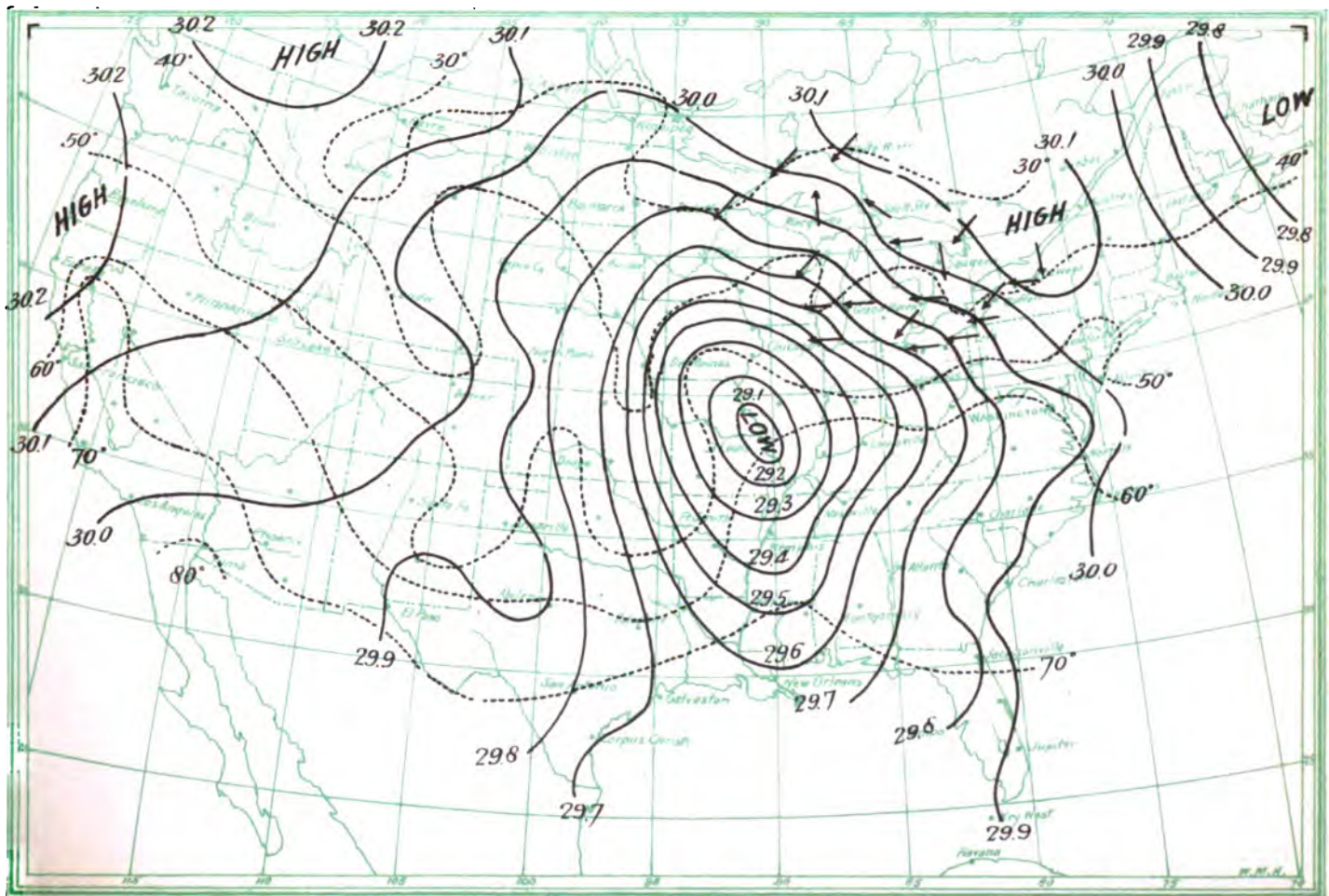


Chart OOLXXXIX

April 20, 1893—8 a. m.

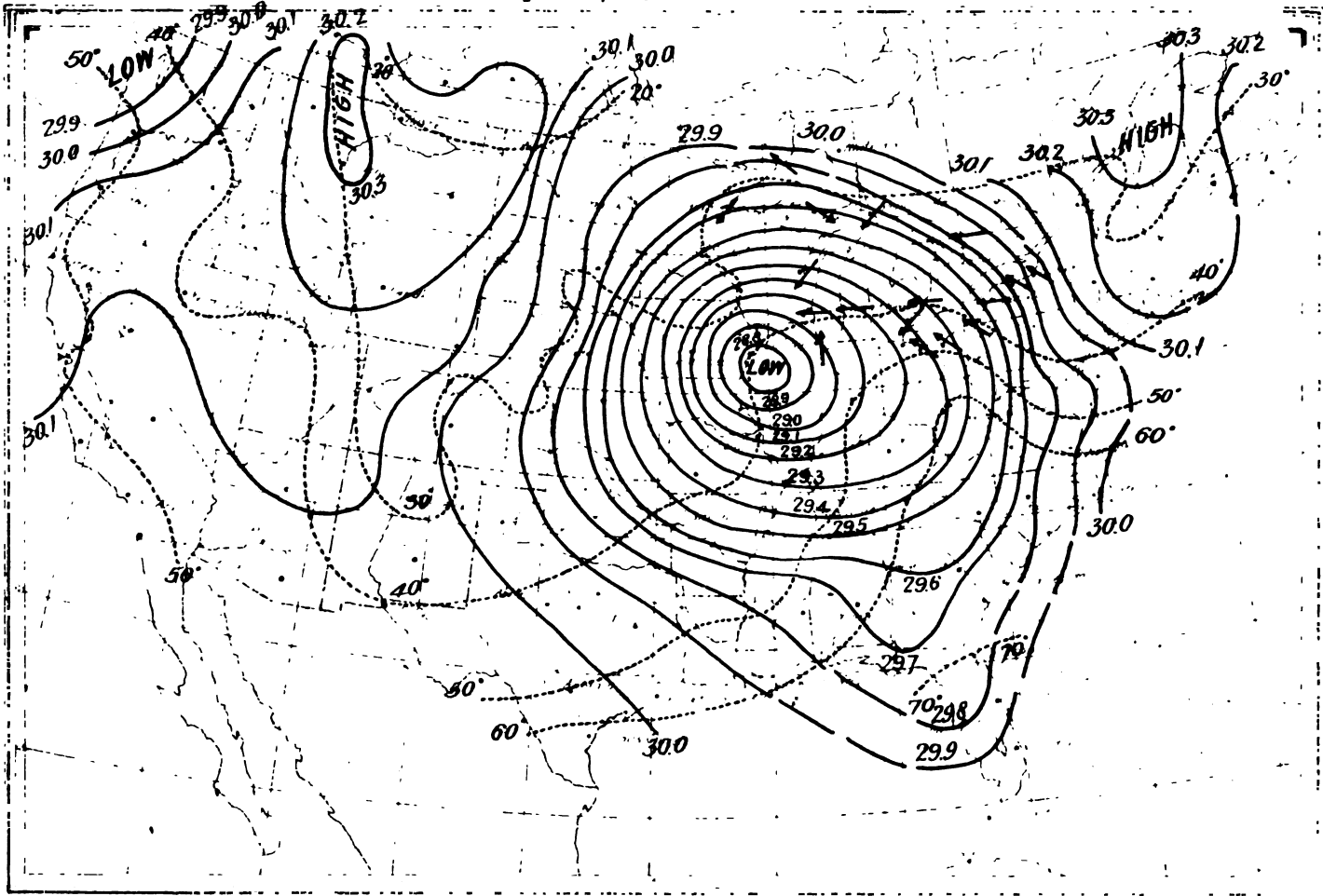


Chart OOLXXX

April 20, 1893—8 p. m.

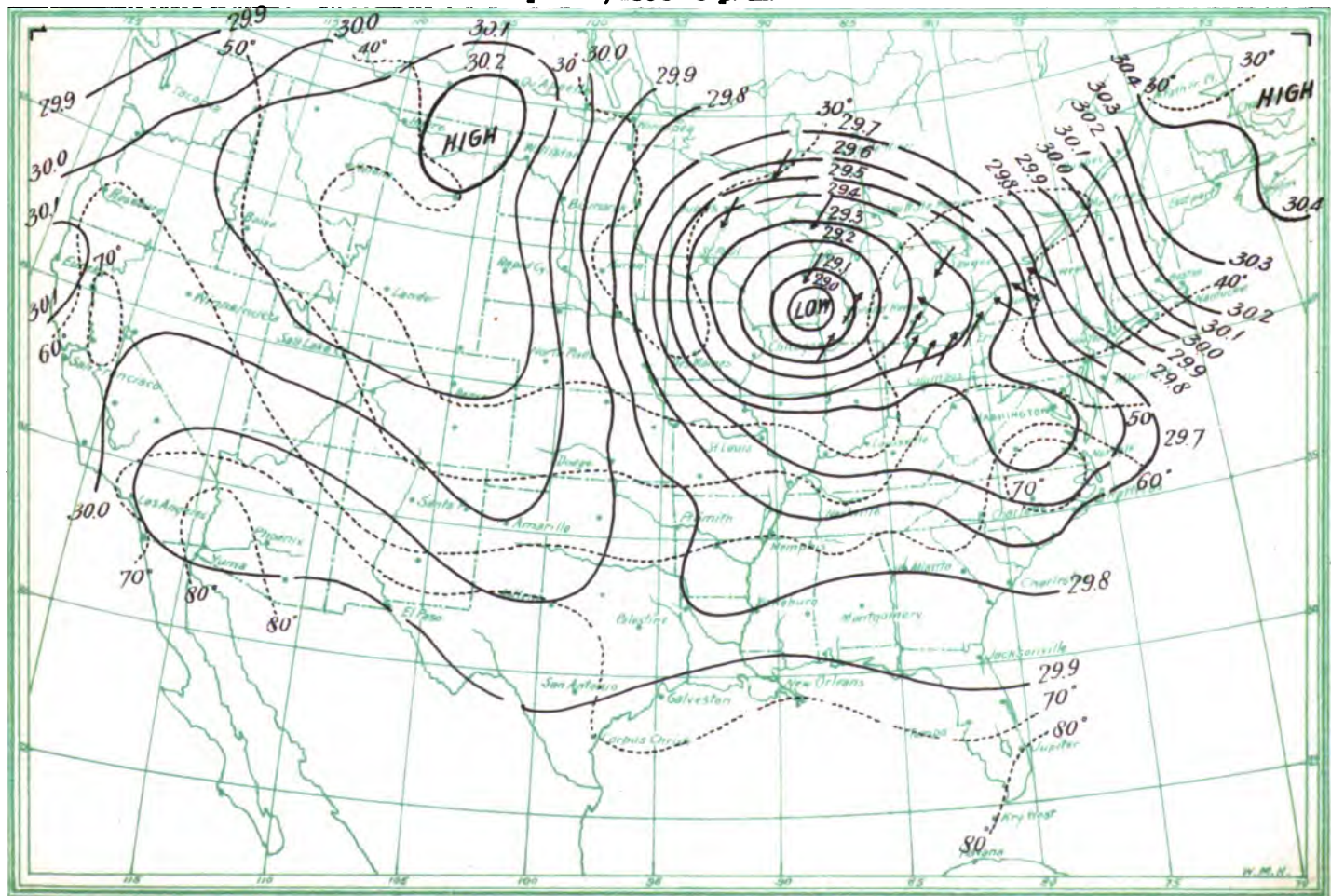


Chart OCLXXXI.

April 17, 1897—8 p. m.

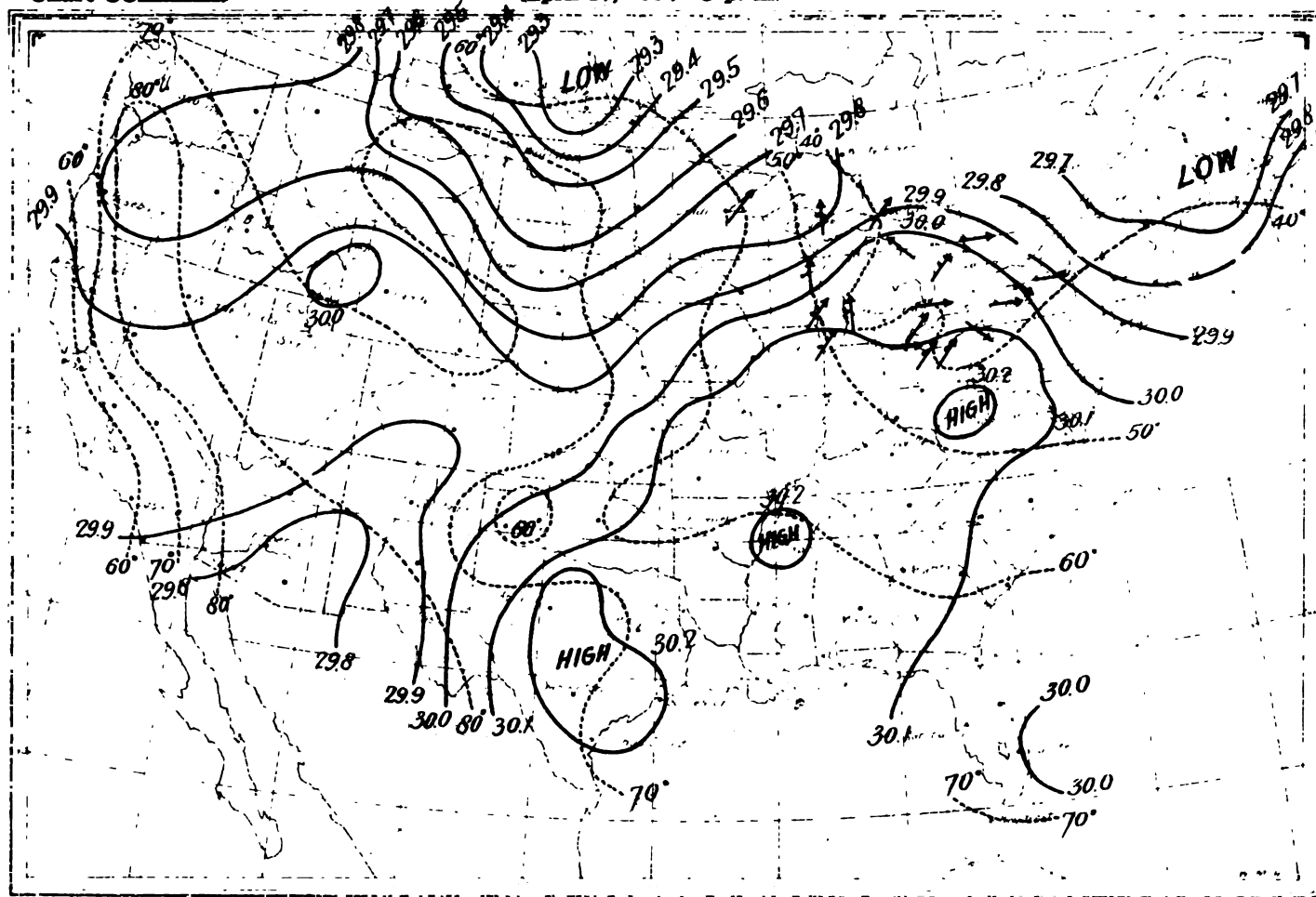


Chart OCLXXXII.

April 18, 1897—8 a. m.

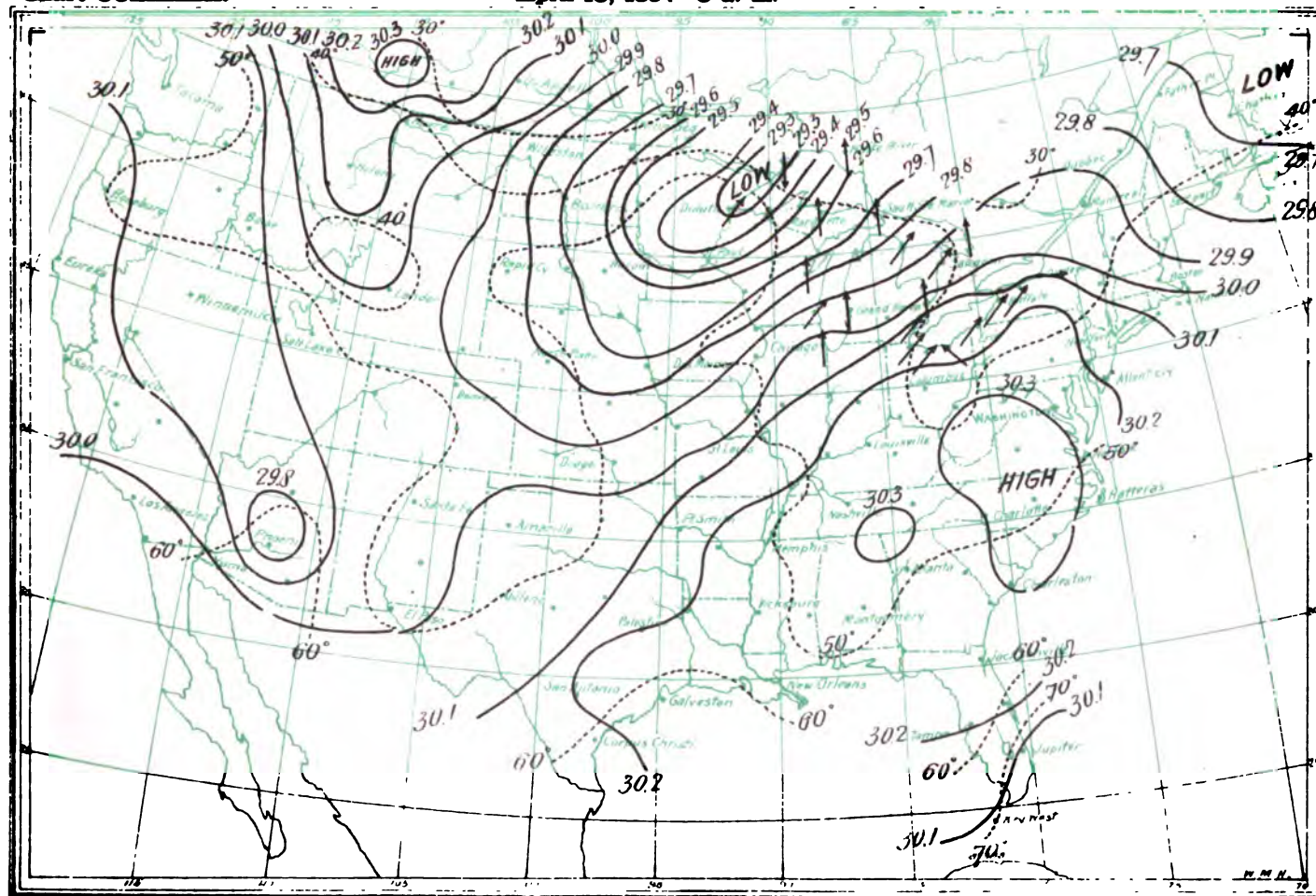


Chart COLXXXIII.

April 18, 1897—8 p. m.

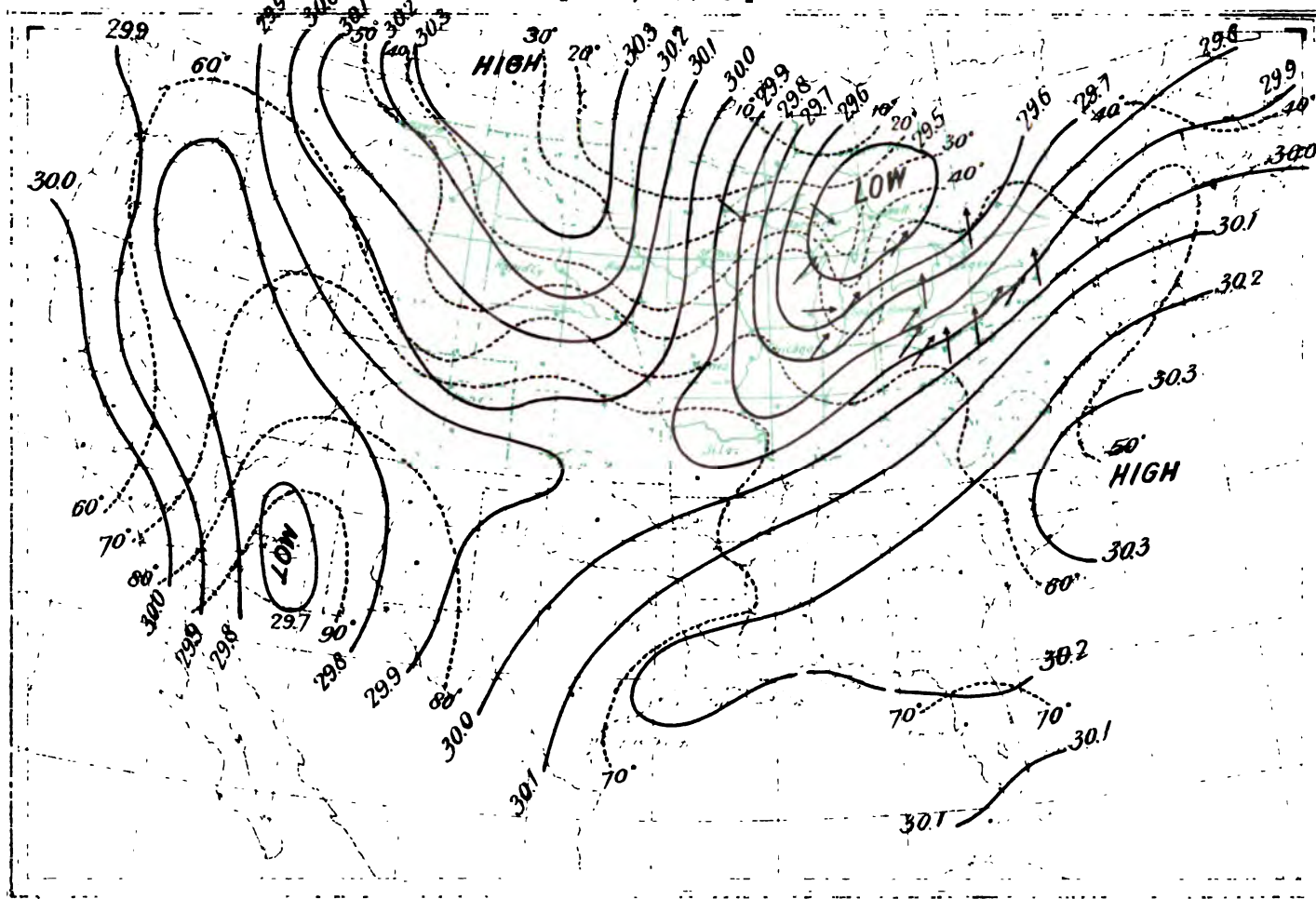


Chart COLXXXIV.

April 19, 1897—8 a. m.

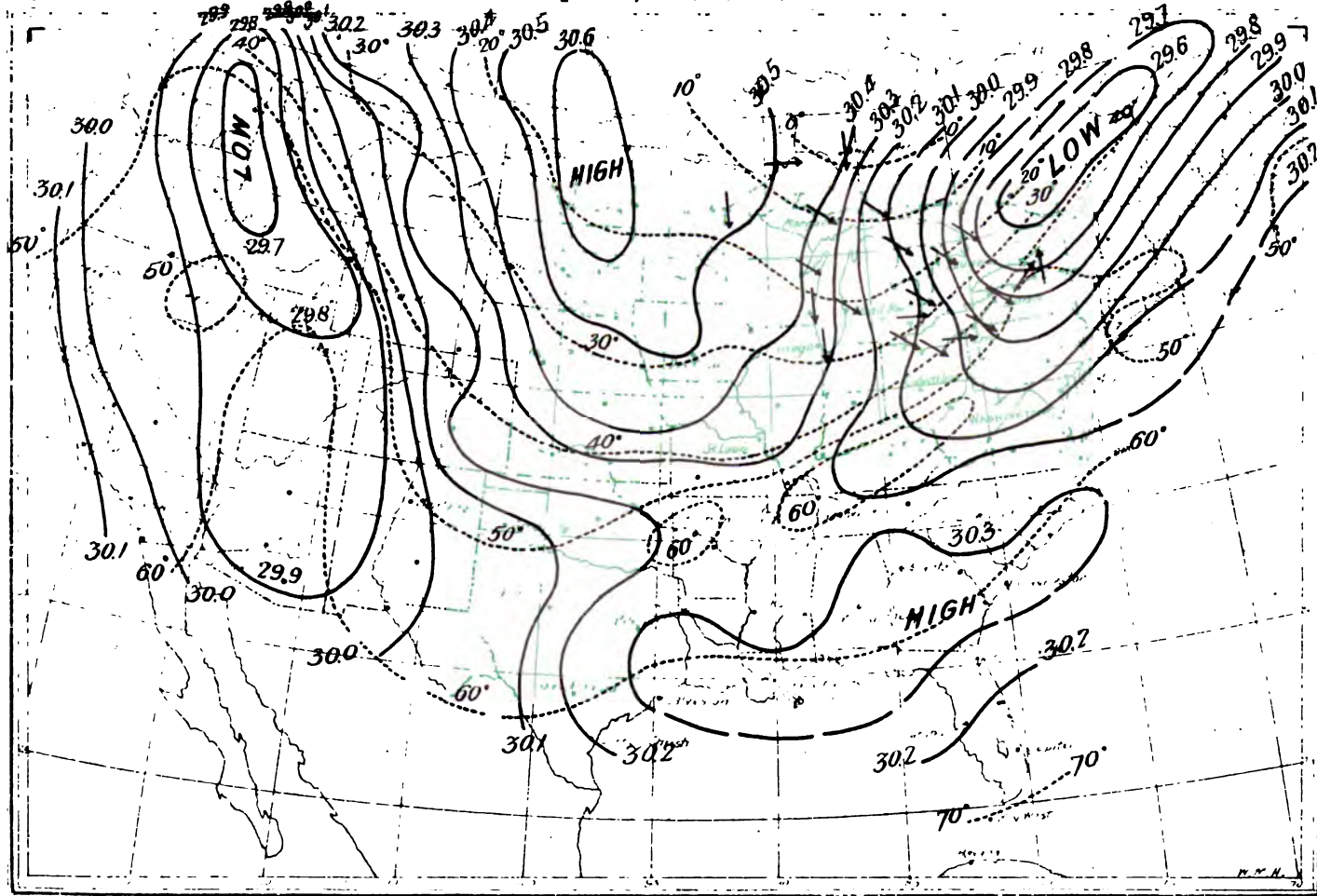


Chart OOLXXXV.

April 12, 1898—8 a. m.

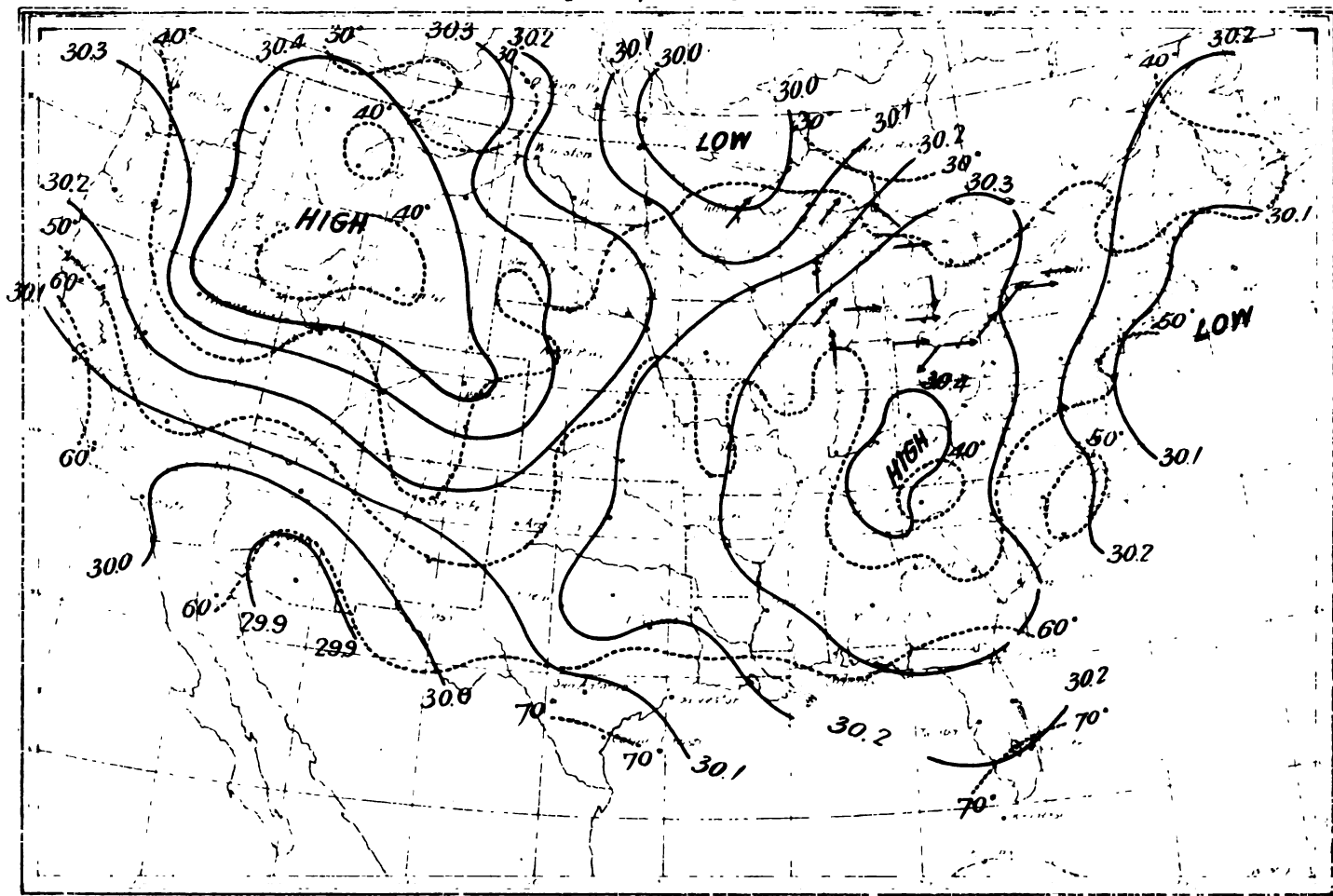


Chart OOLXXXVI.

April 12, 1898—8 p. m.

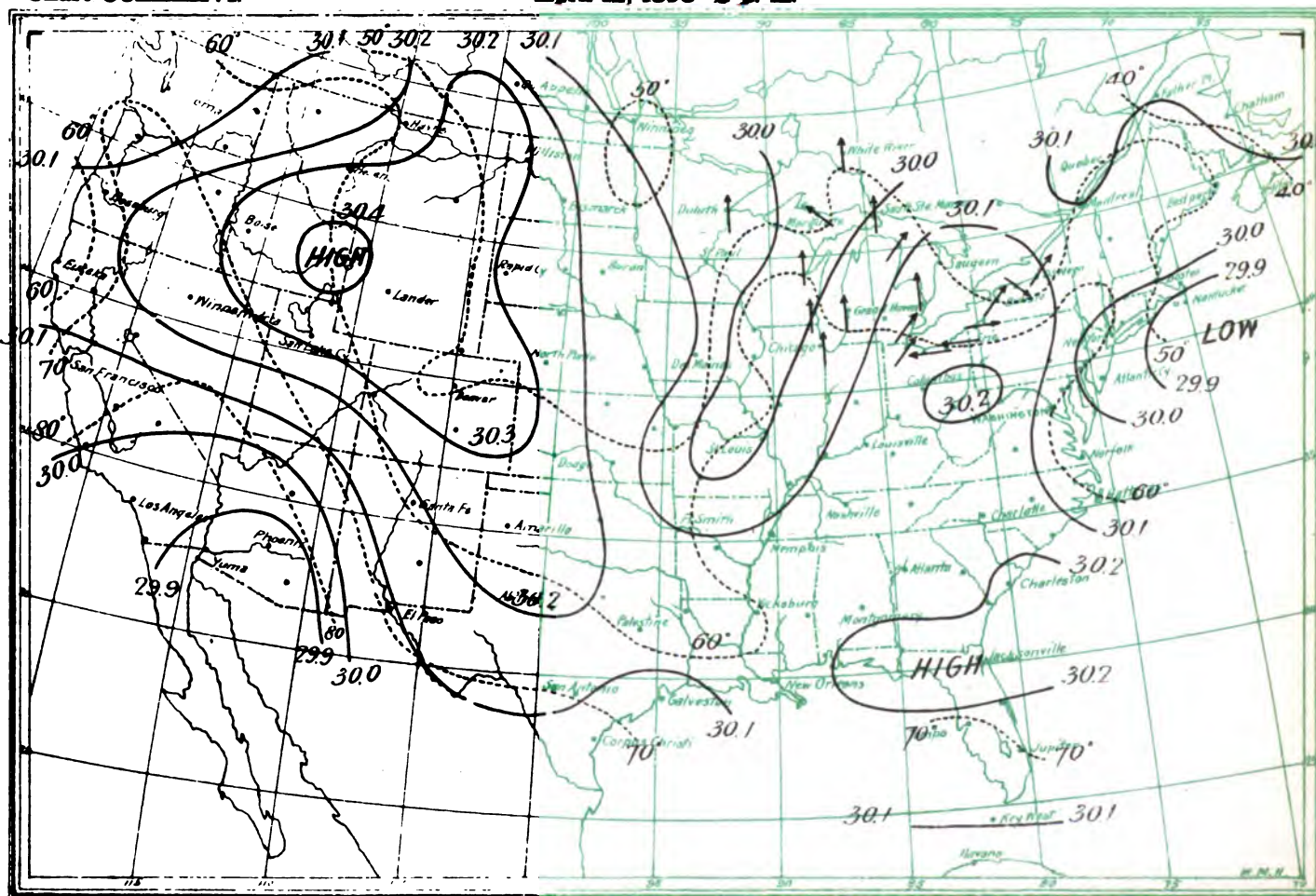


Chart COLXXXVII.

April 13, 1898—8 a. m.

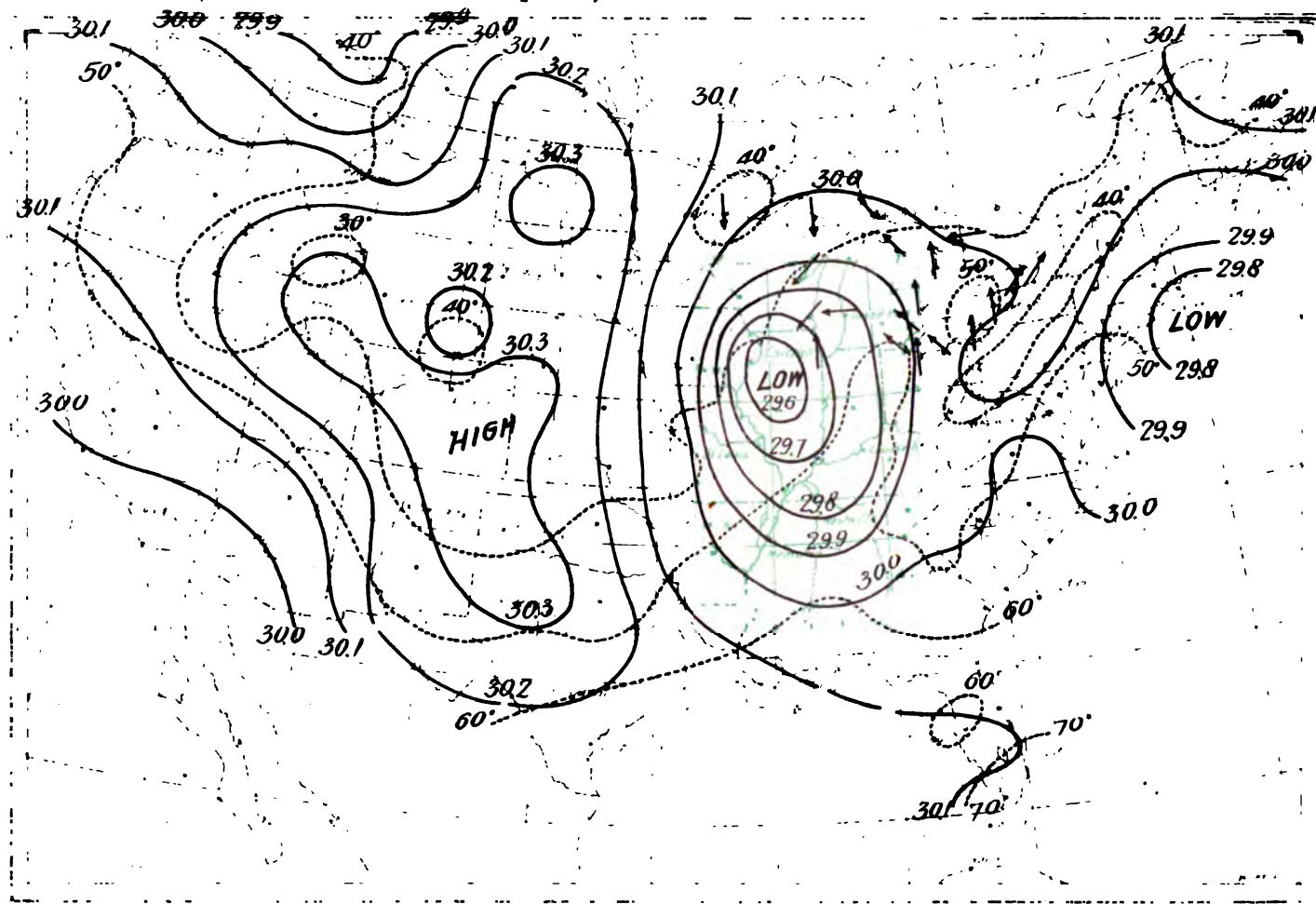


Chart COLXXXVIII.

April 13, 1898—8 p. m.

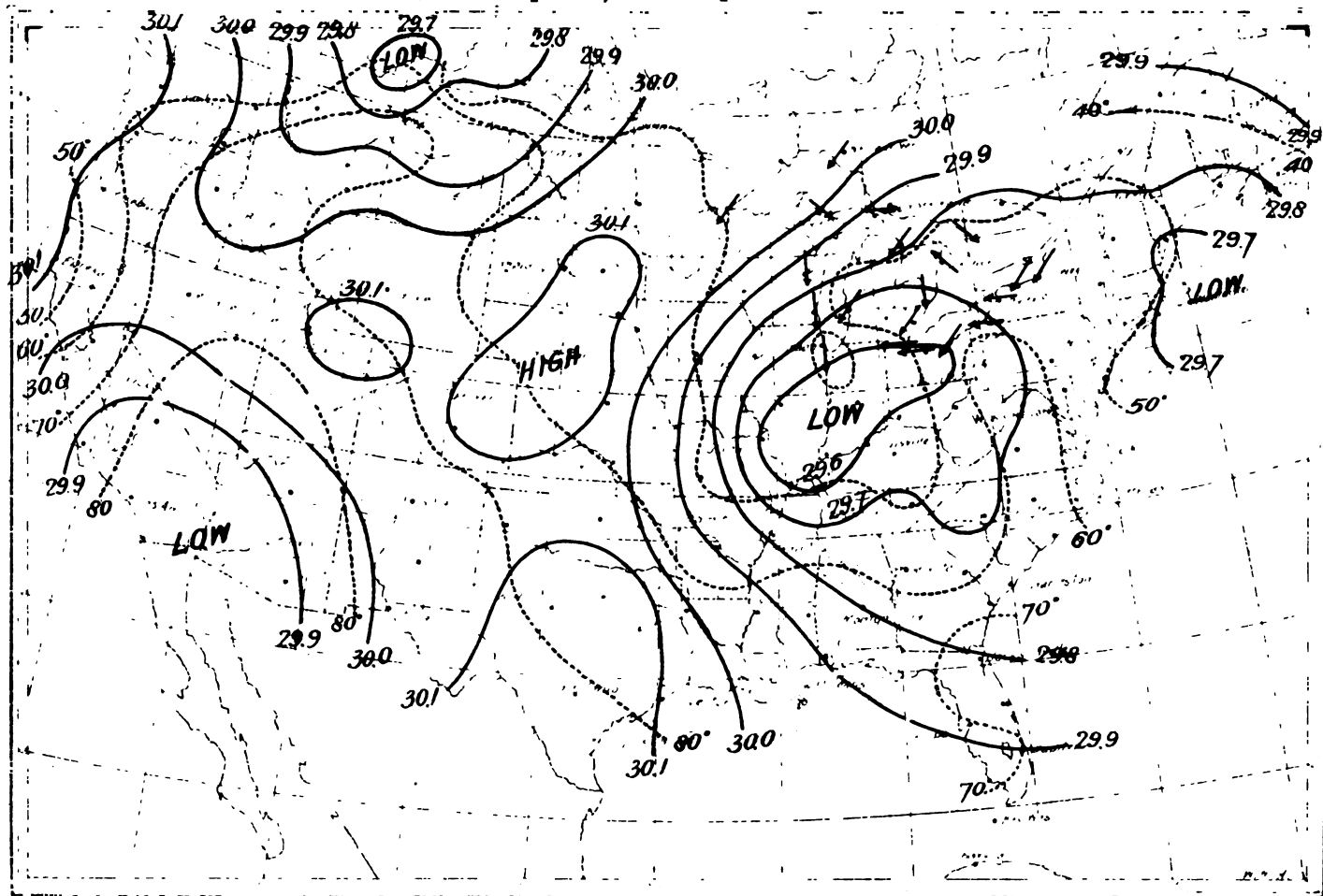


Chart COLXXXIX.

May 2, 1876—7:35 a. m.

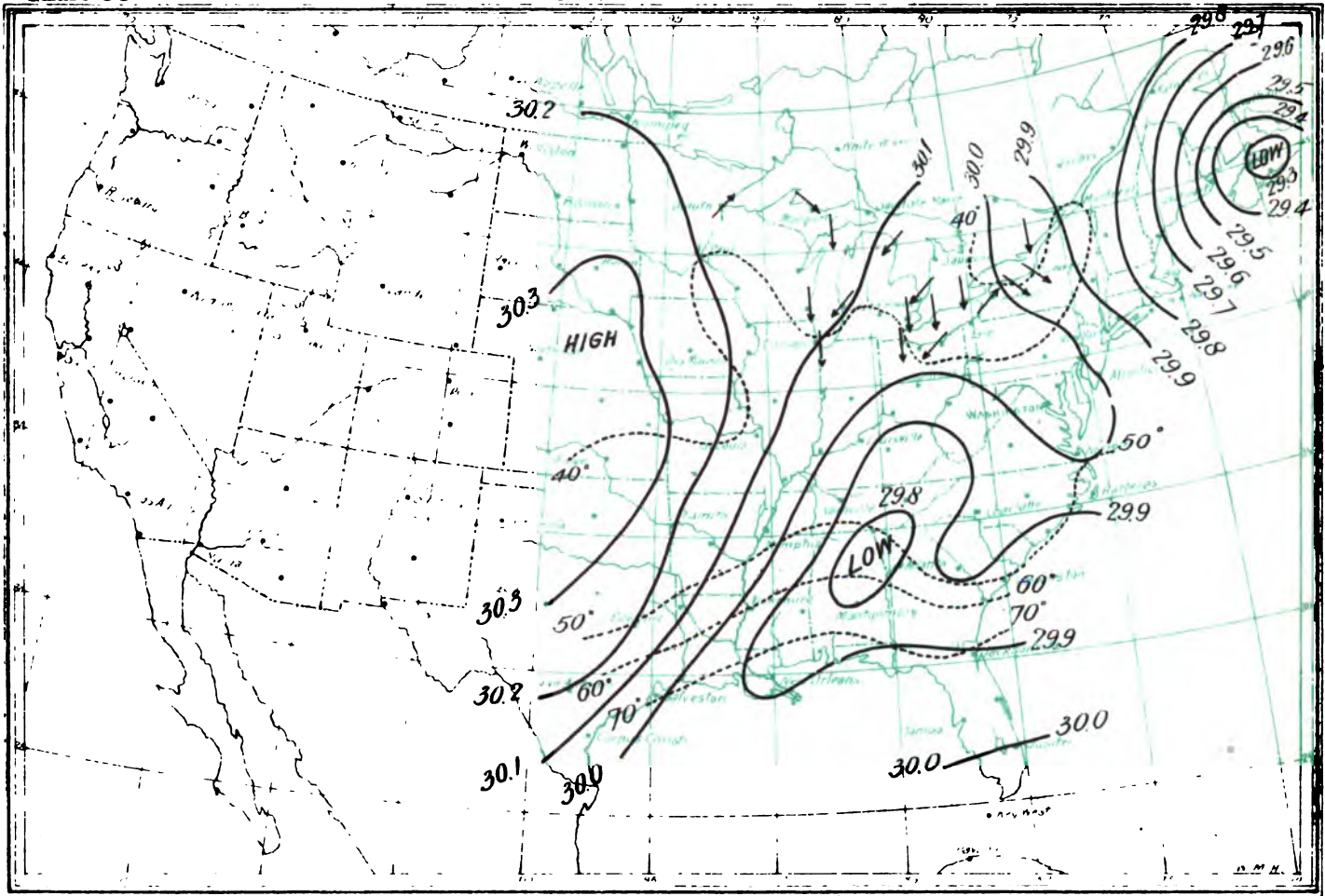


Chart CXXC.

May 2, 1876—4:35 p. m.

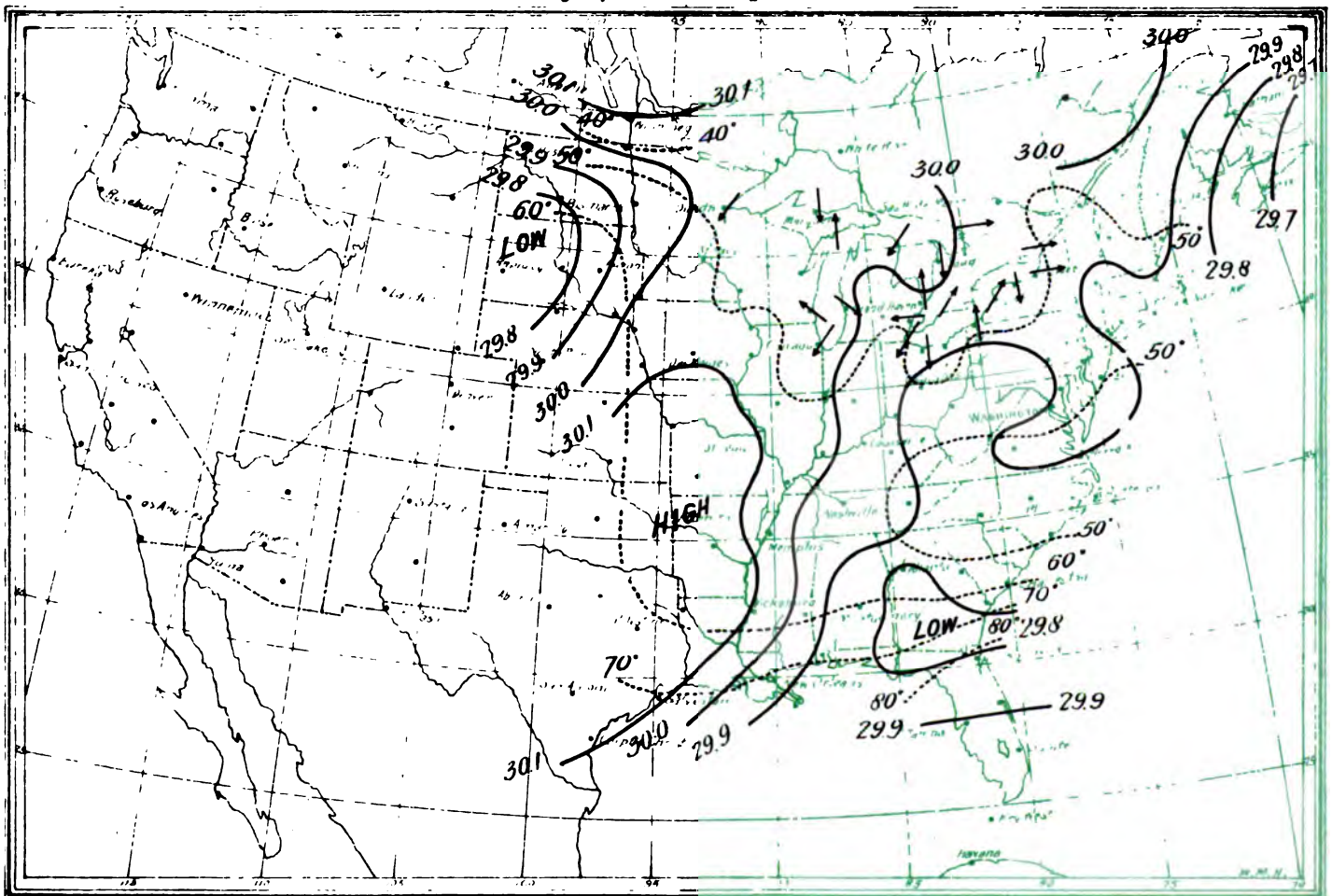


Chart COXOI.

May 3, 1876—7:35 a. m.

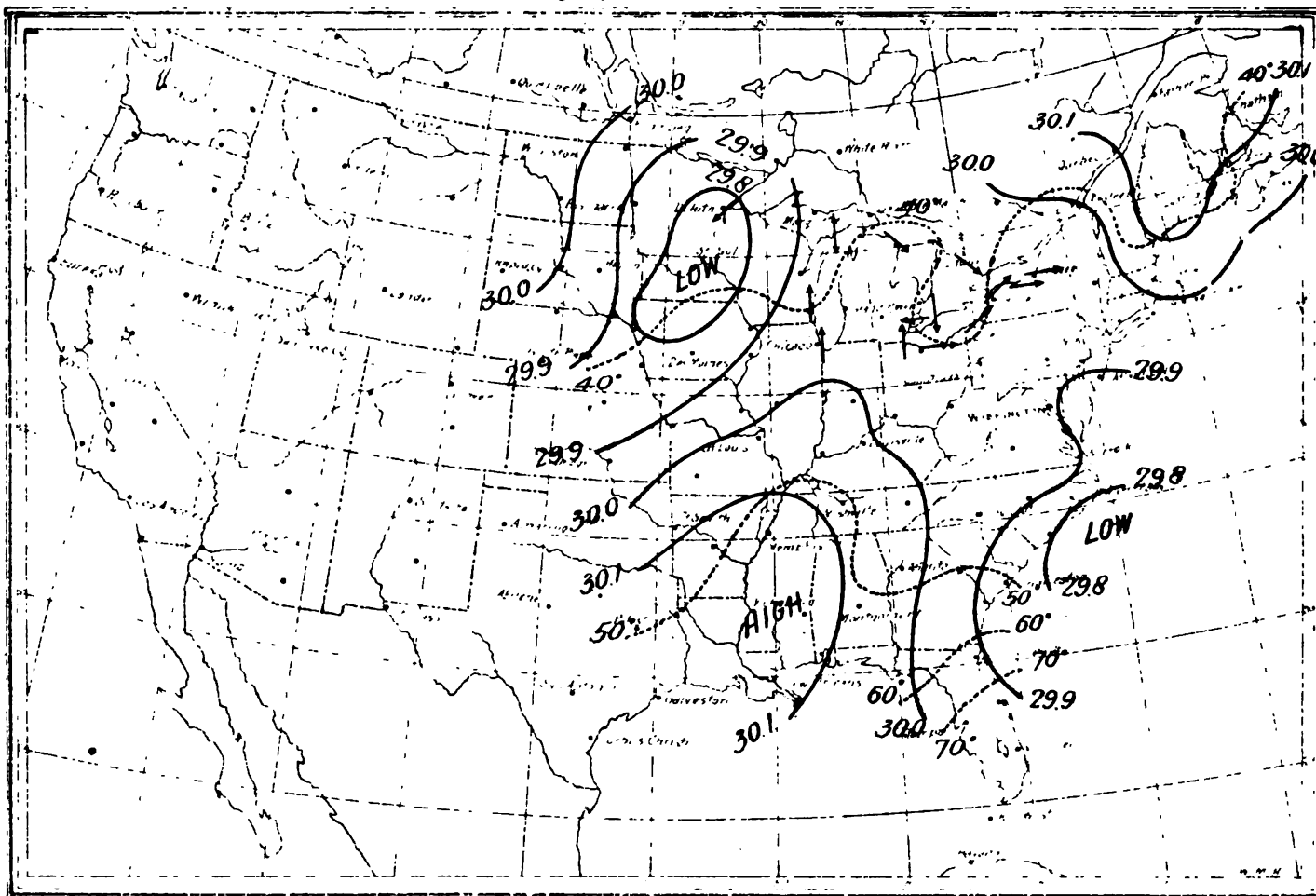


Chart COXOII.

May 8, 1876—4:35 p. m.

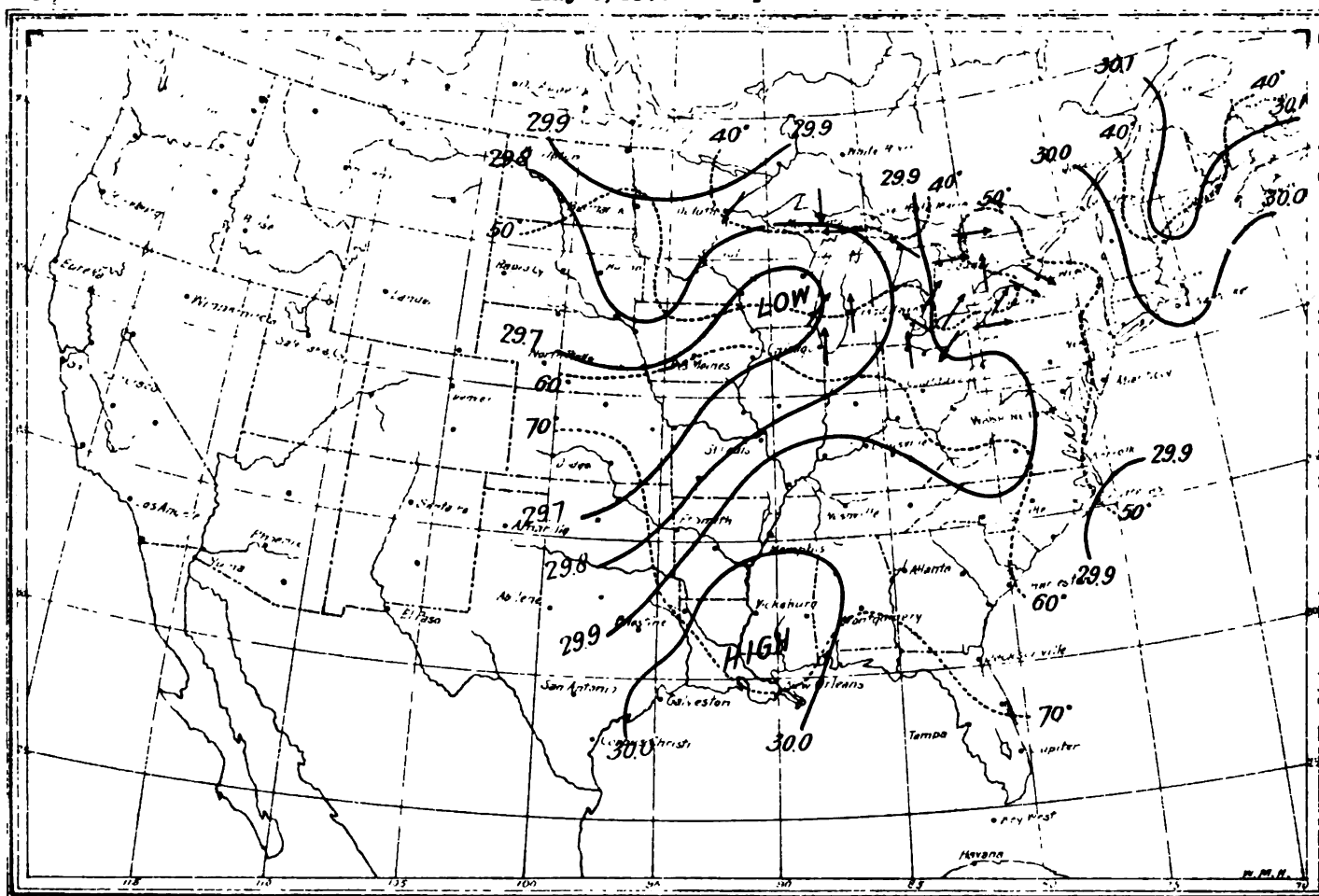


Chart CXXOIII.

May 19, 1878—7:35 a. m.

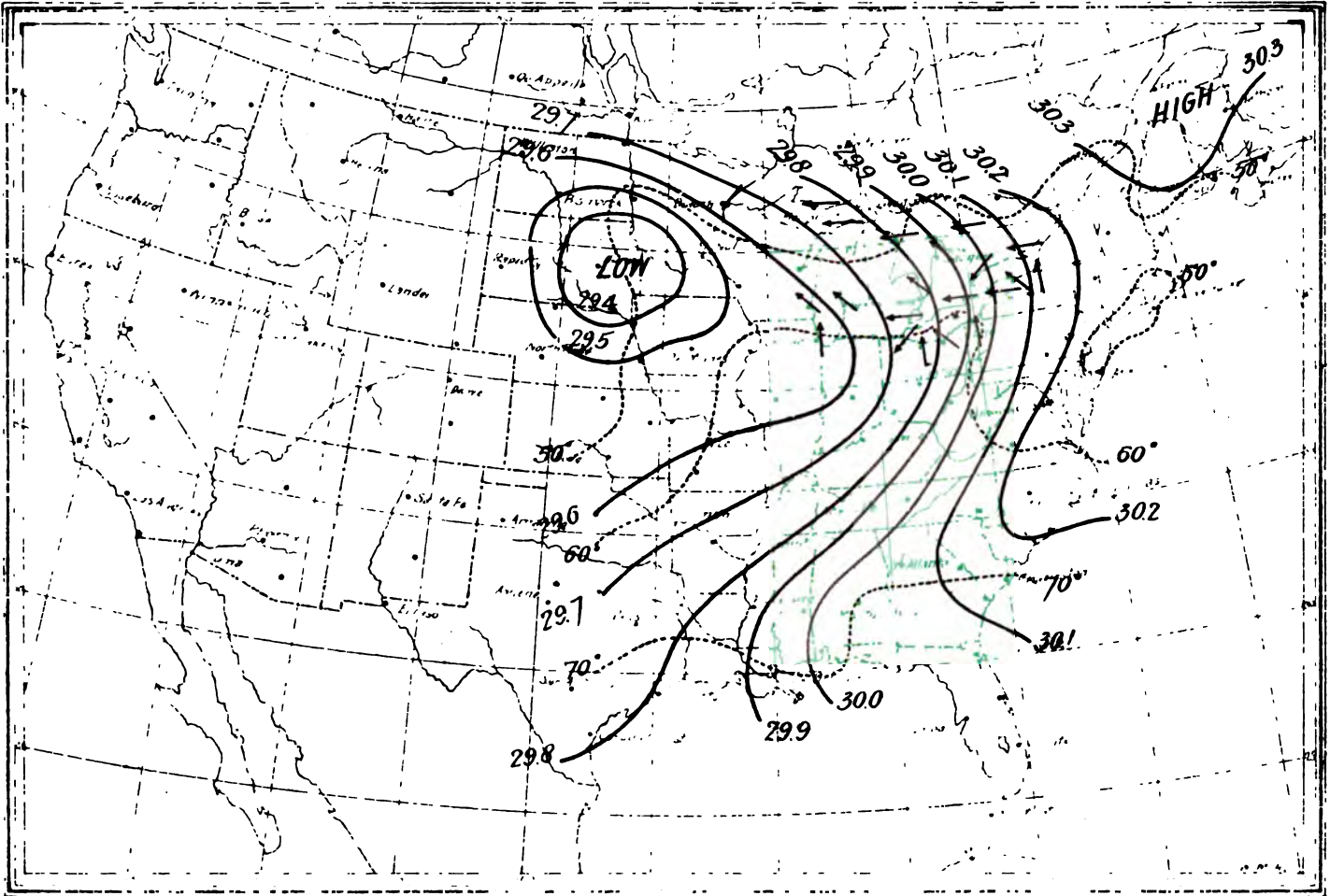


Chart CXXOIV.

May 19, 1878—4:35 p. m.

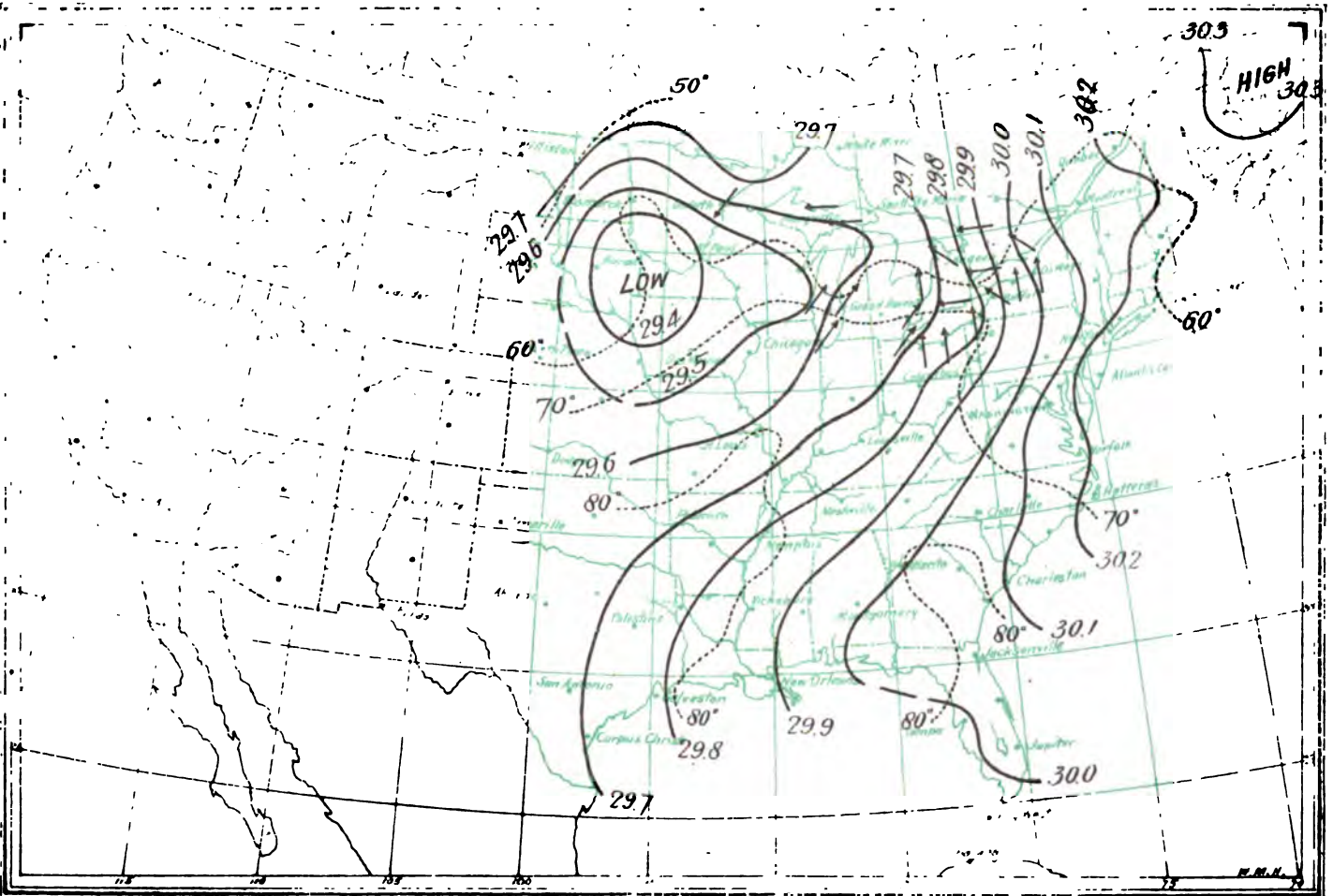


Chart CXXOV.

May 20, 1878—7:35 a. m.

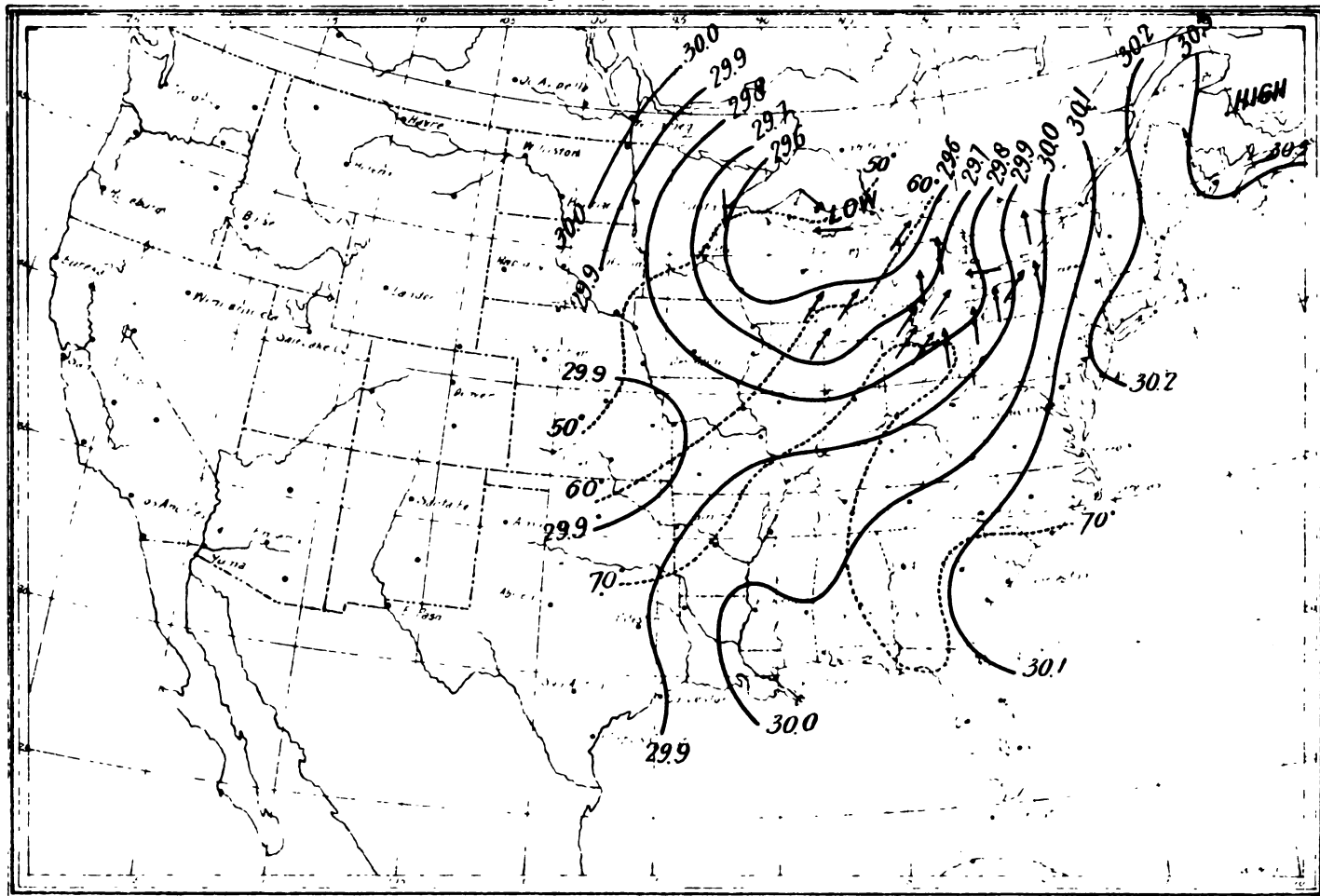


Chart CXXOVI.

May 20, 1878—4:35 p. m.

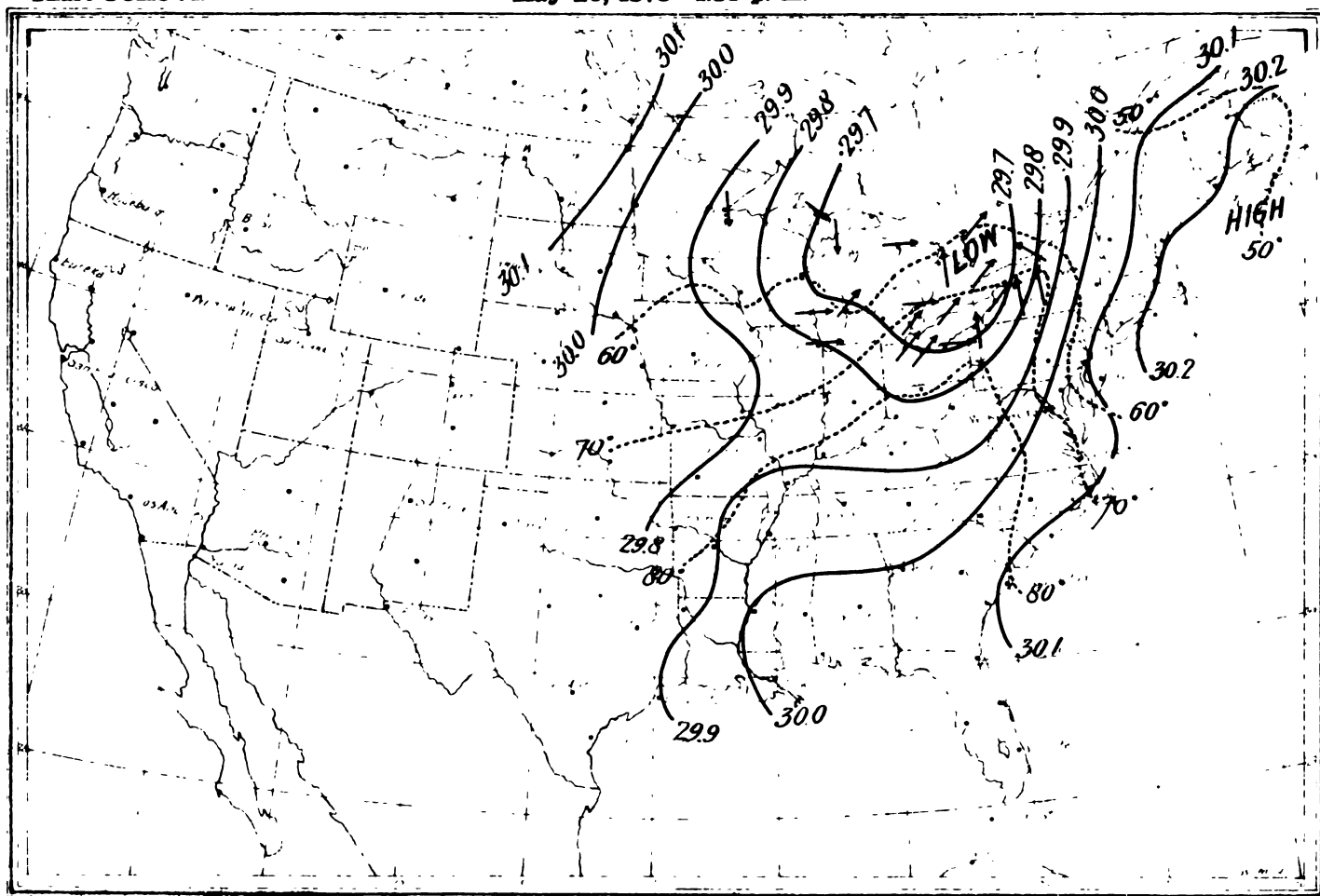


Chart CXXOVII.

May 1, 1884—7 a. m.

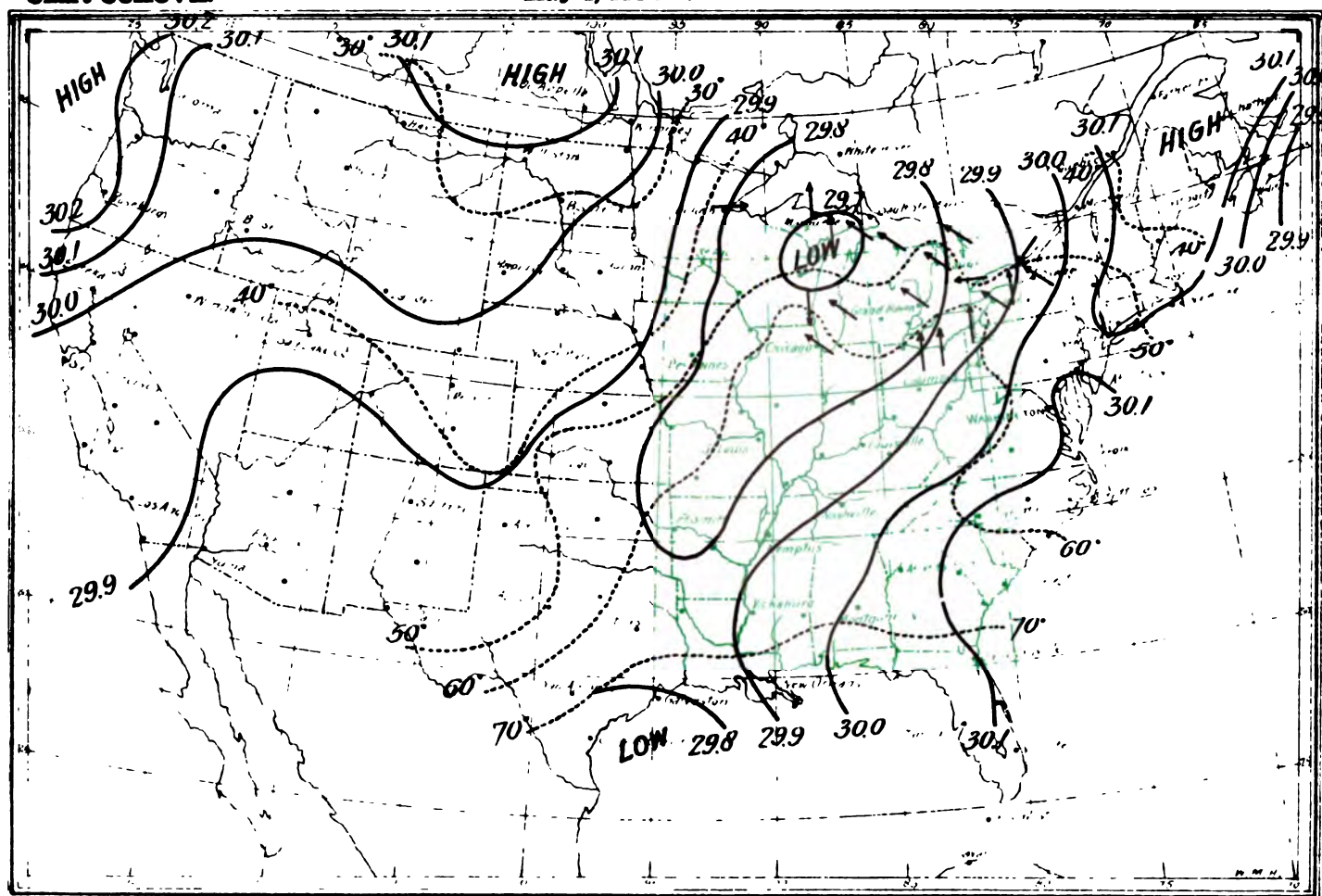


Chart CXXOVIII.

May 1, 1884—8 p. m.

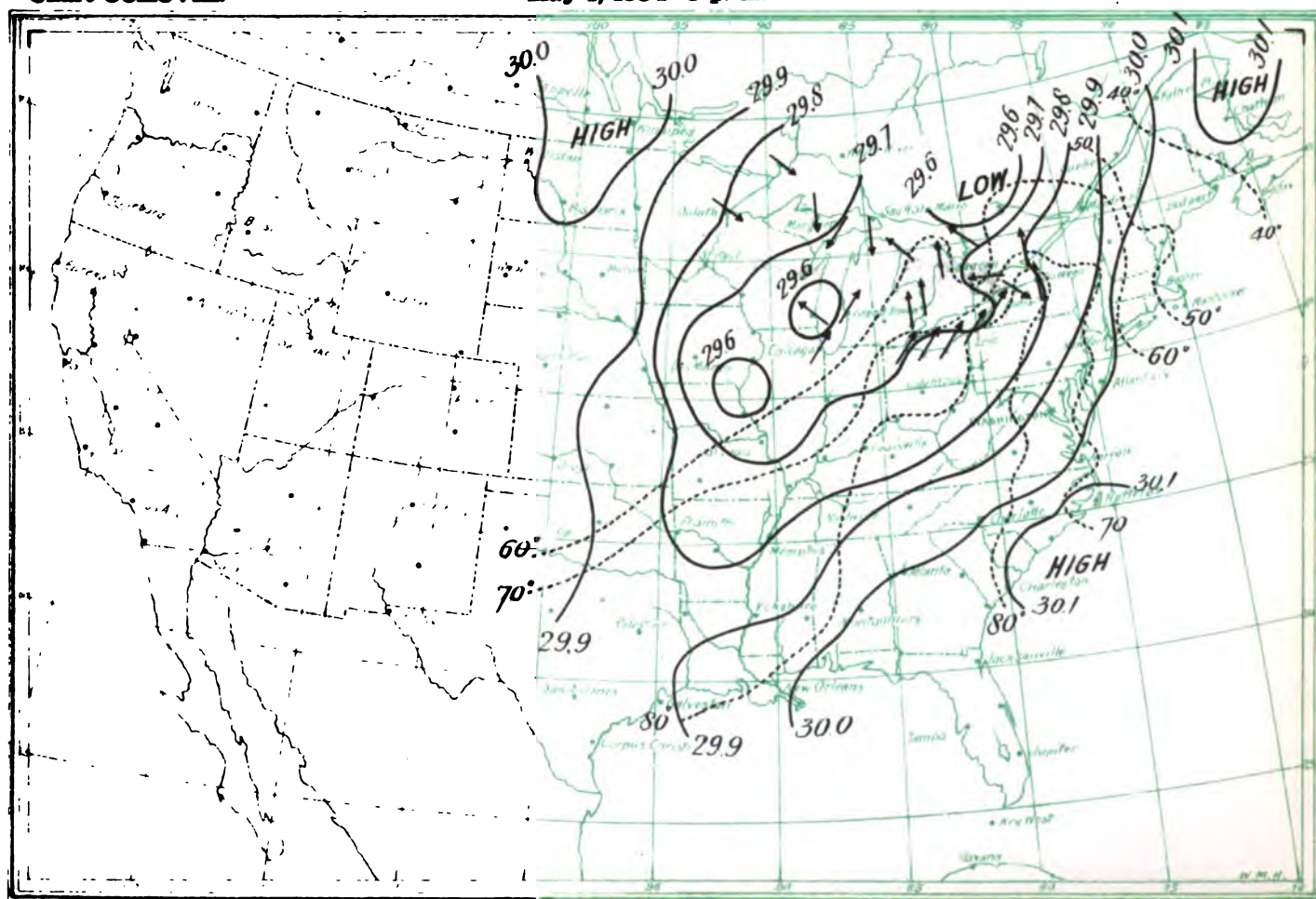


Chart CXXIX.

May 2, 1884—7 a. m.

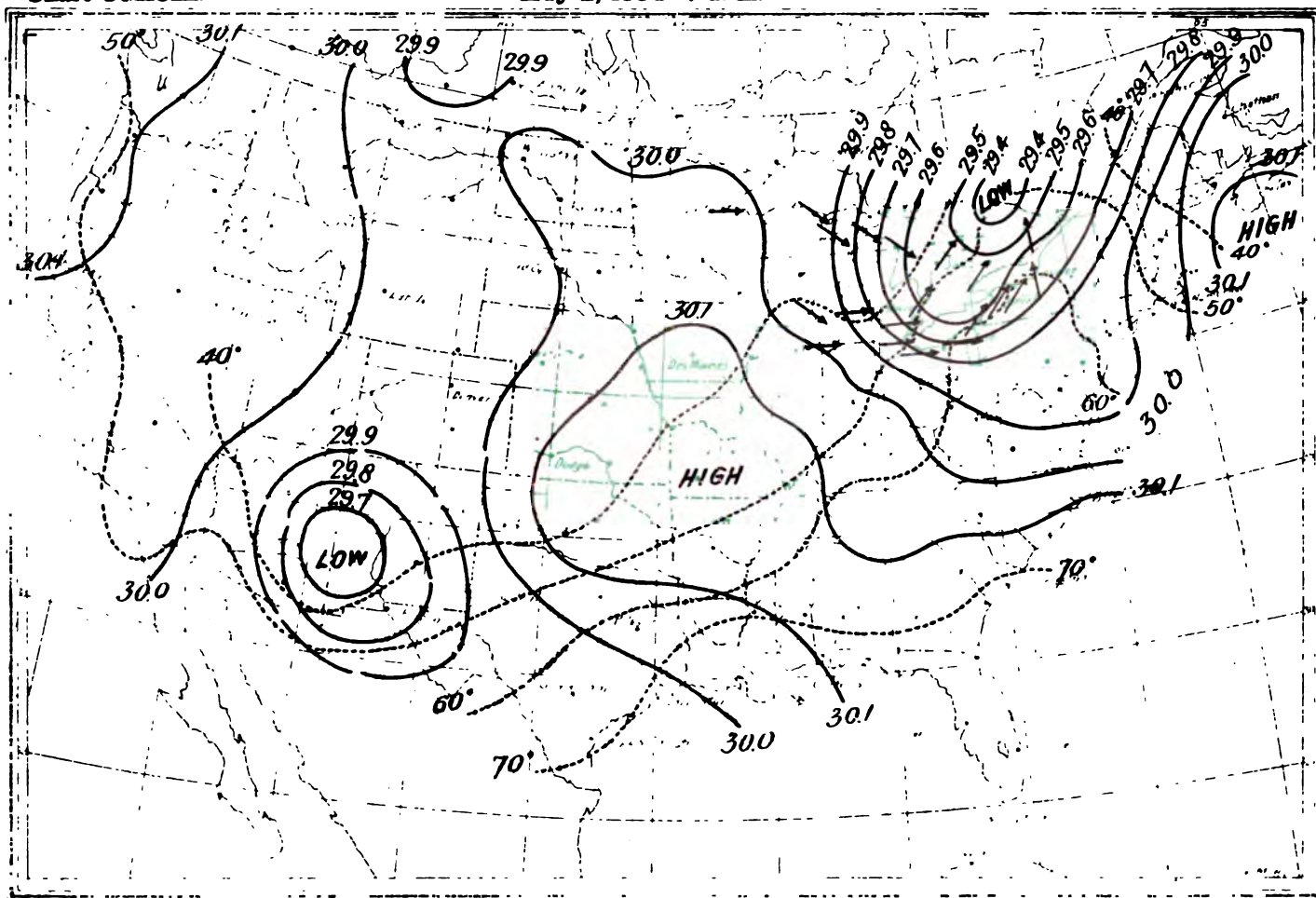


Chart CCC.

May 2, 1884—3 p. m.

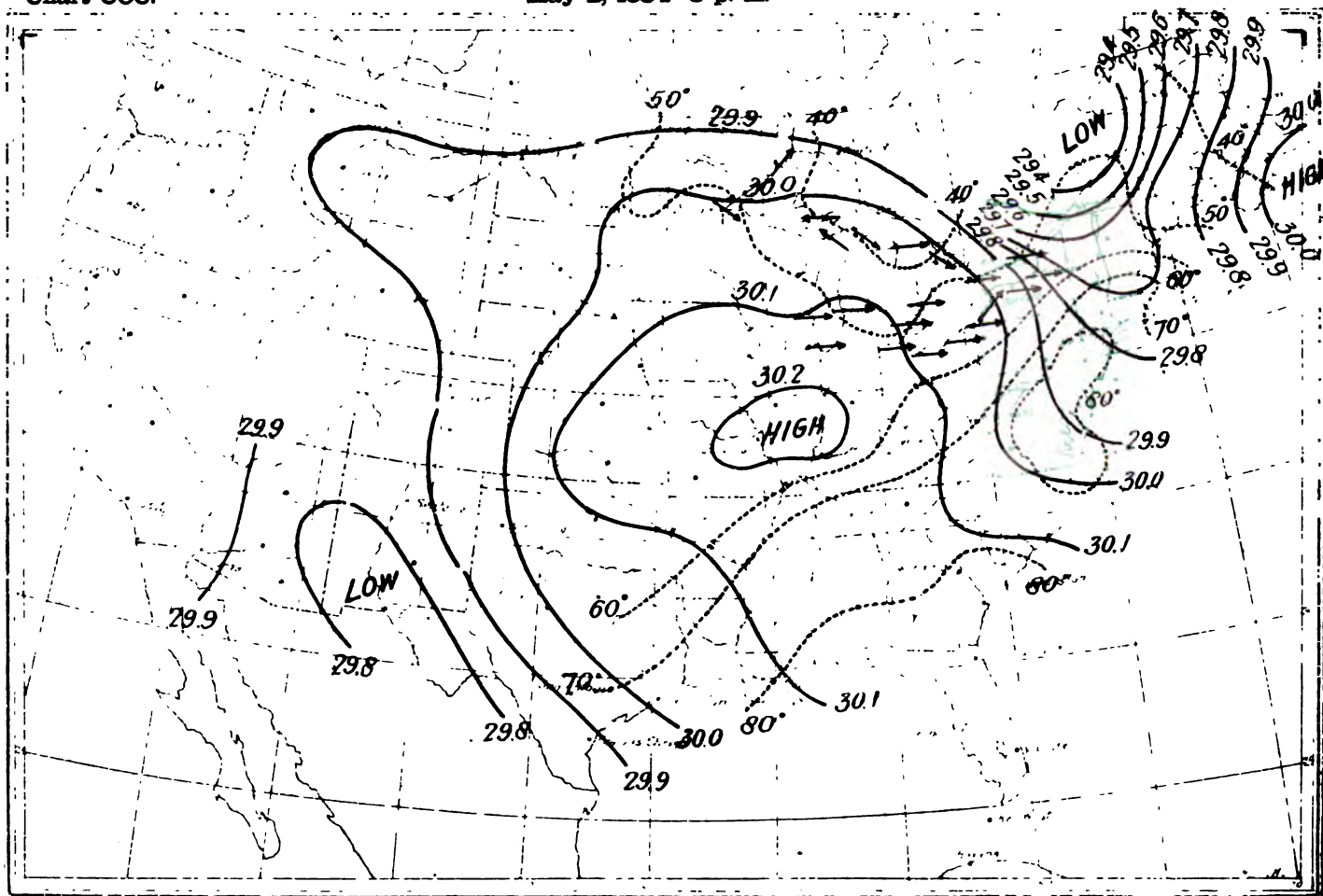


Chart 0001.

May 1, 1887—7 a. m.

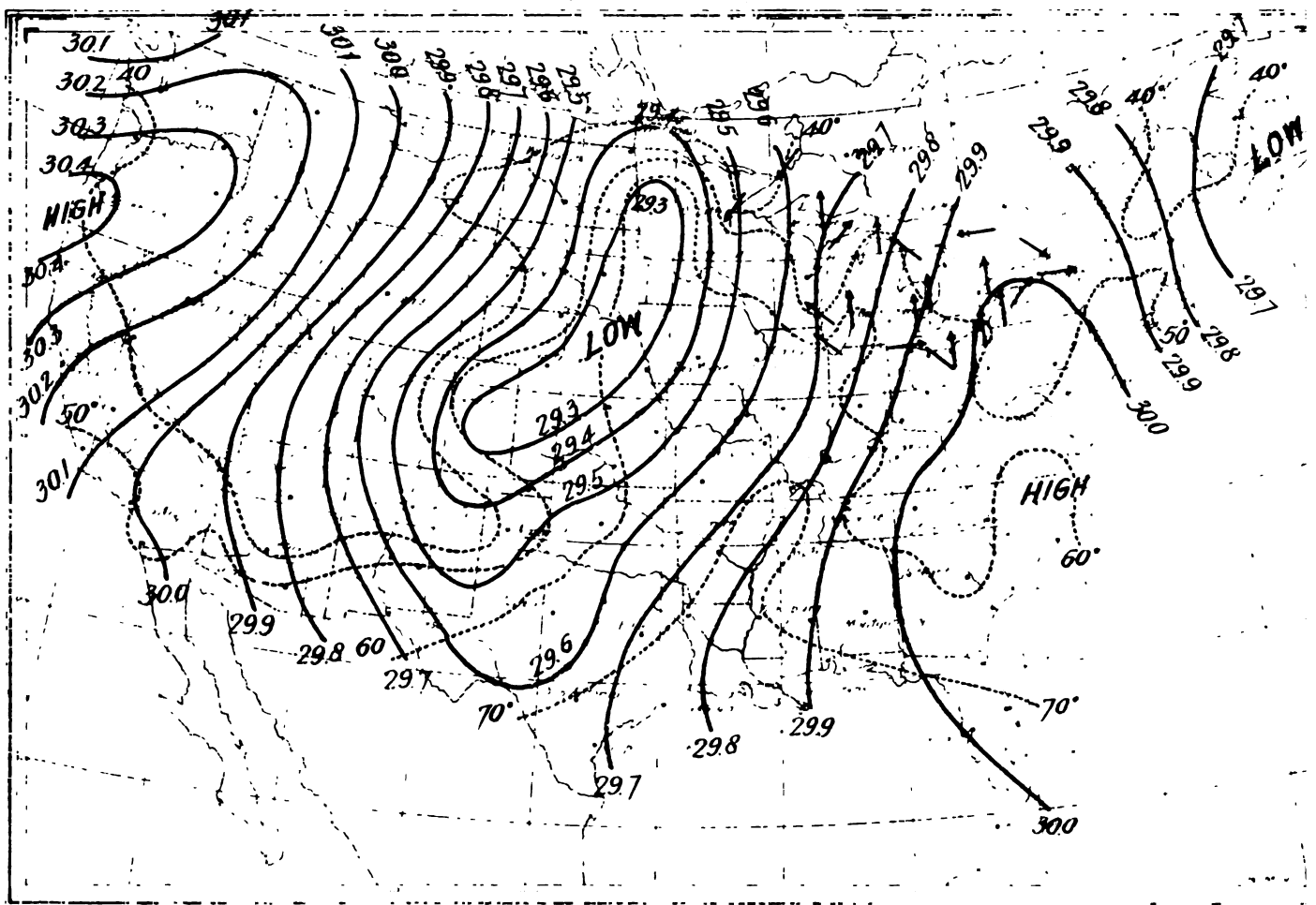


Chart 0002.

May 1, 1887—8 p. m.

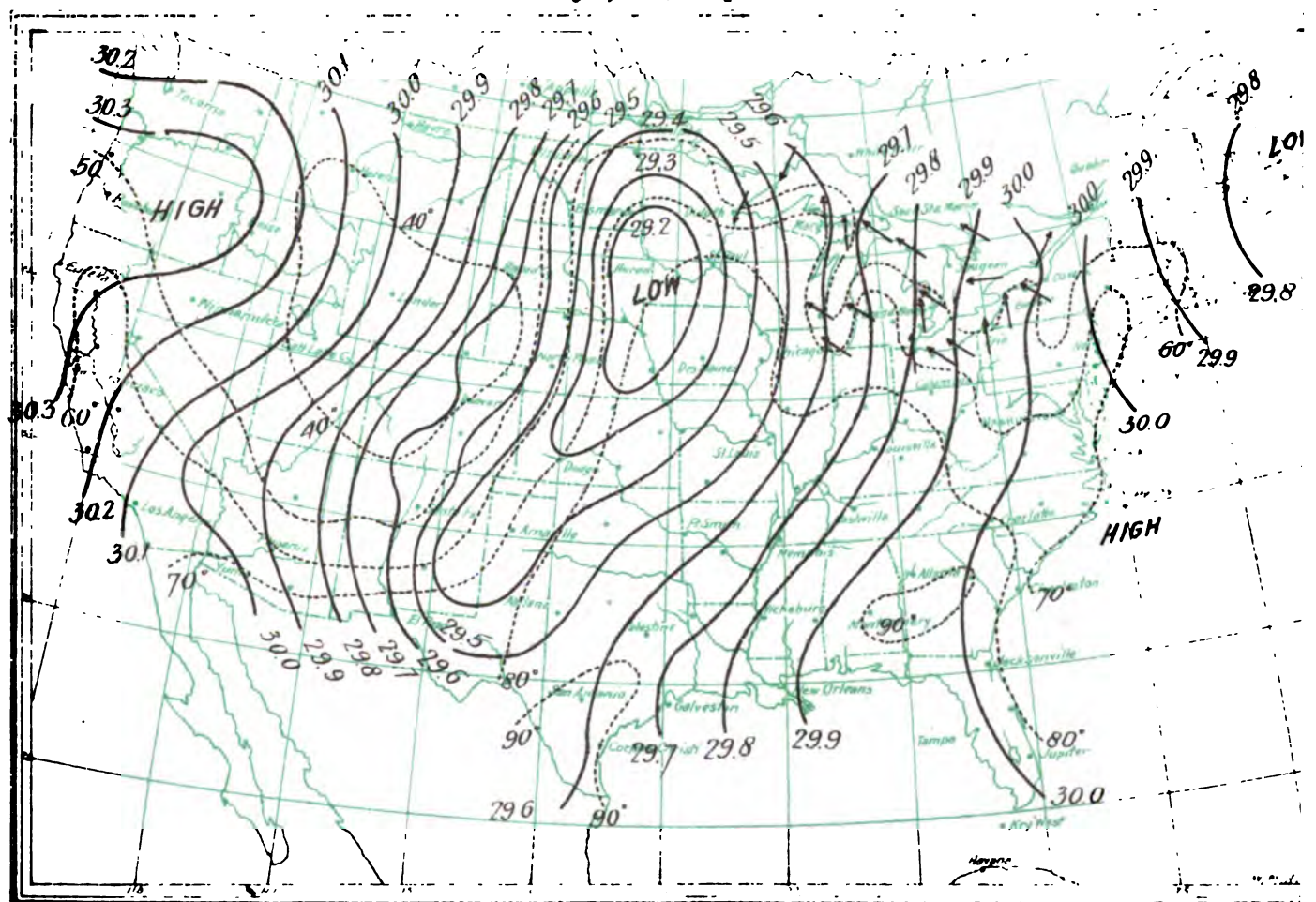


Chart 000III.

May 2, 1887—7 a. m.

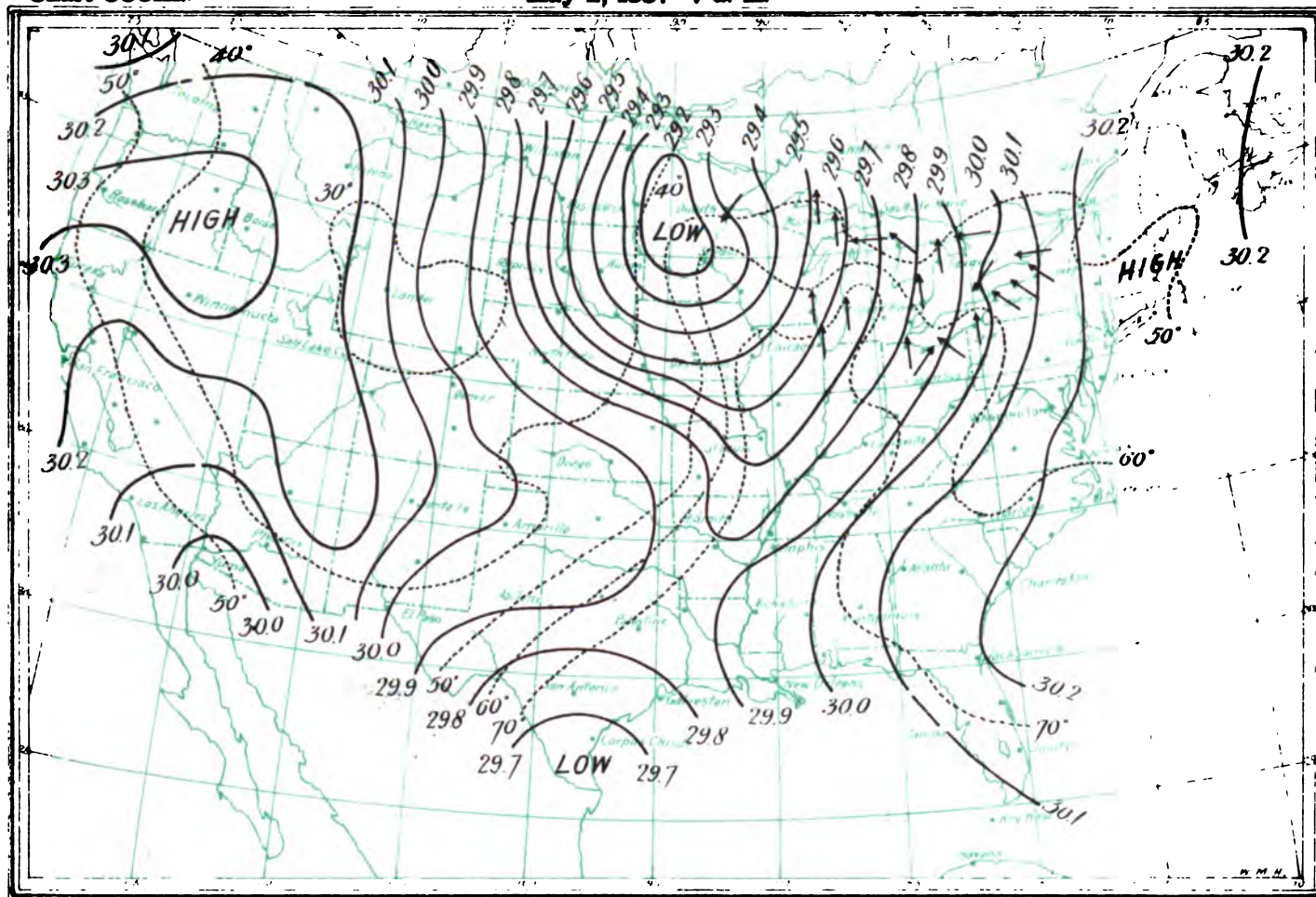


Chart 000IV.

May 2, 1887—8 p. m.

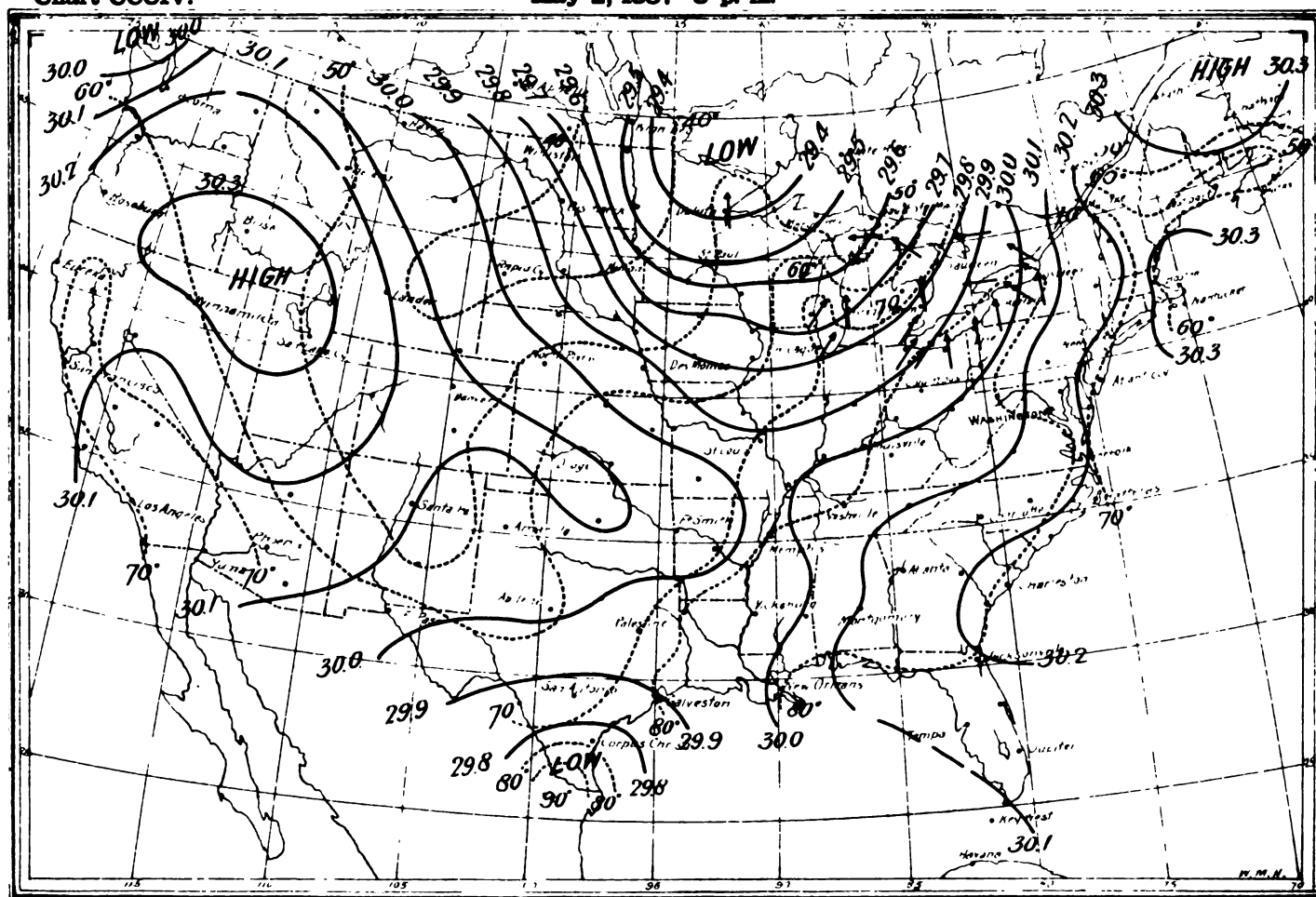


Chart 000V.

May 26, 1889—8 a. m.

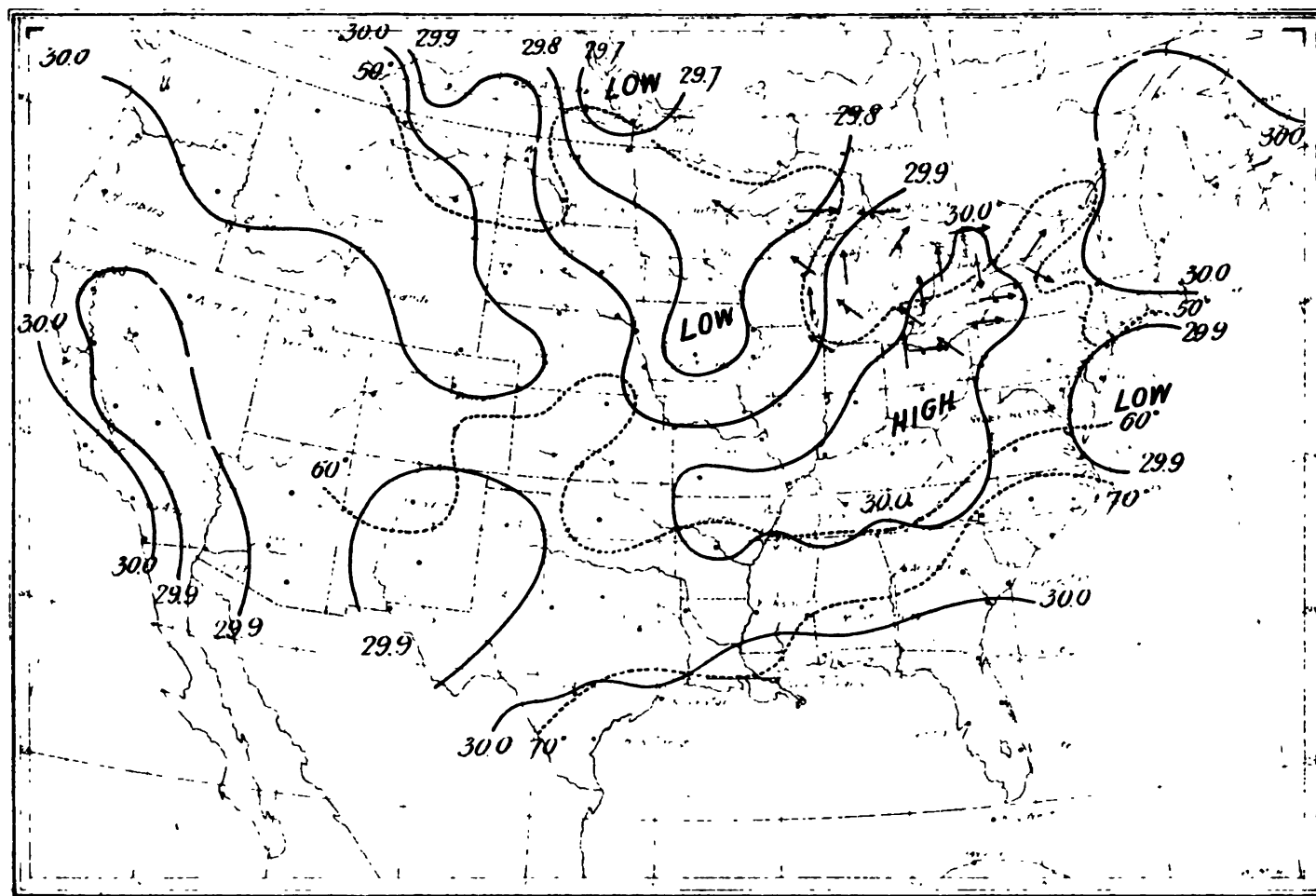


Chart 000VI.

May 26, 1889—8 p. m.

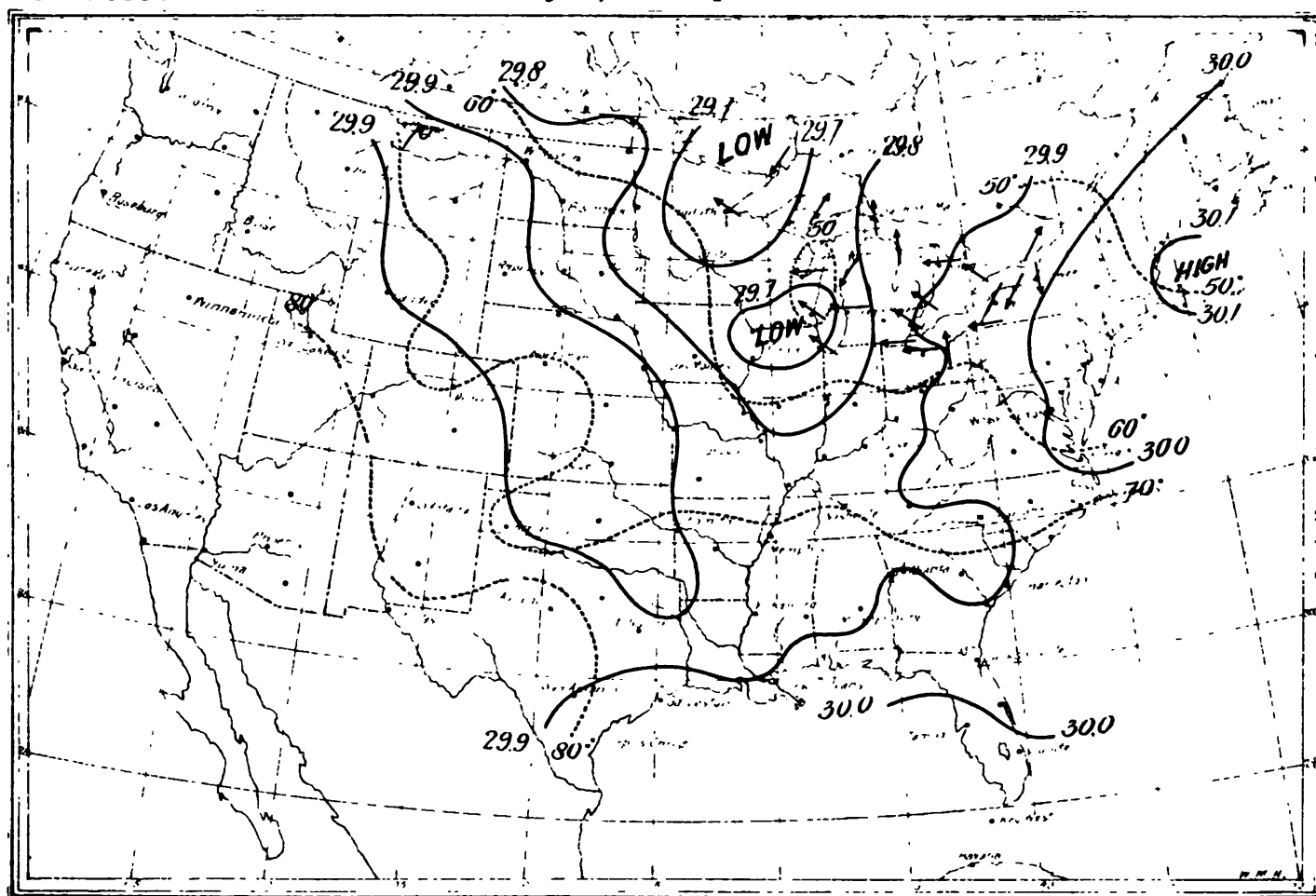


Chart CCOVII.

May 27, 1889—8 a. m.

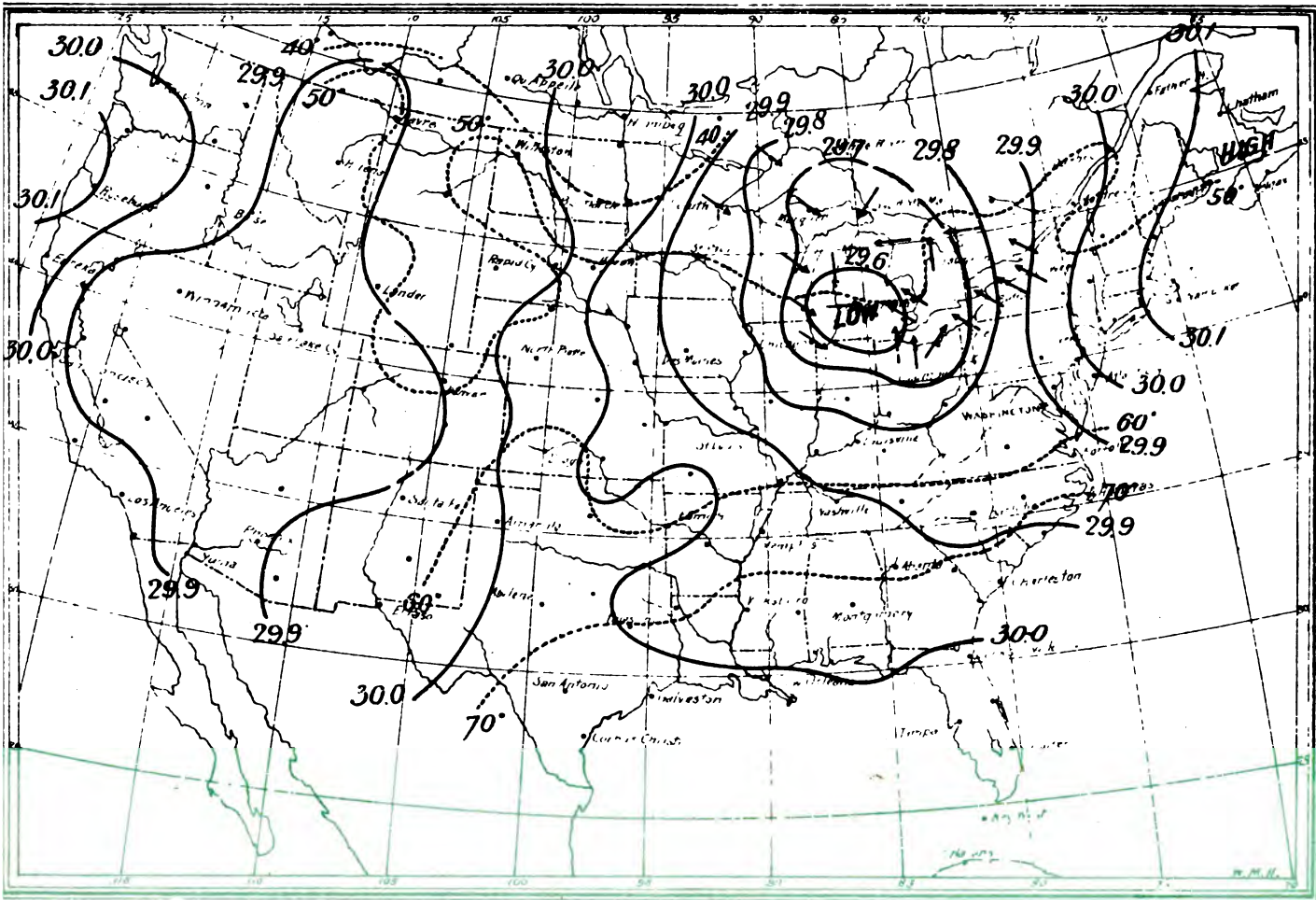


Chart CCOVIII.

May 27, 1889—8 p. m.

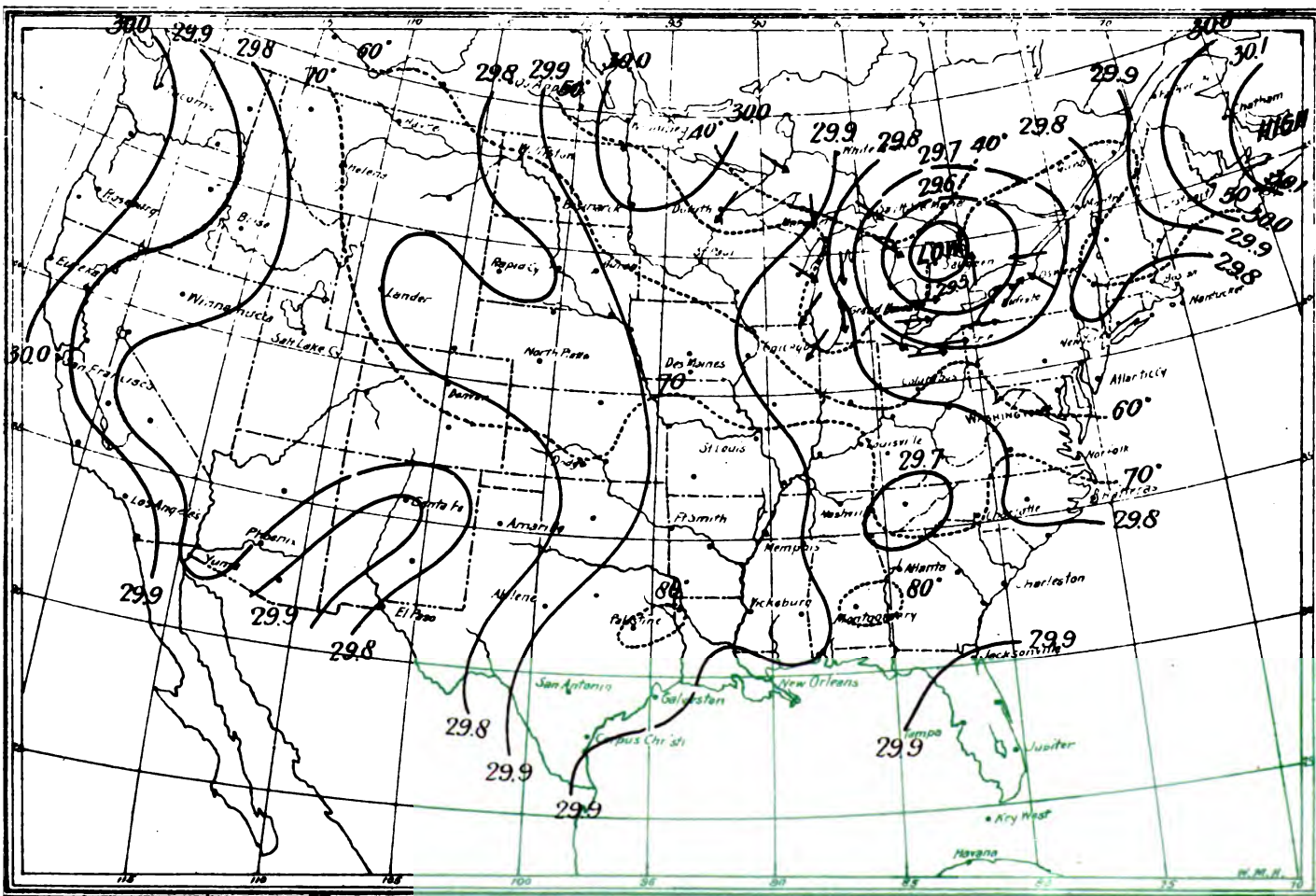


Chart 000IX.

May 9, 1890—8 a. m.

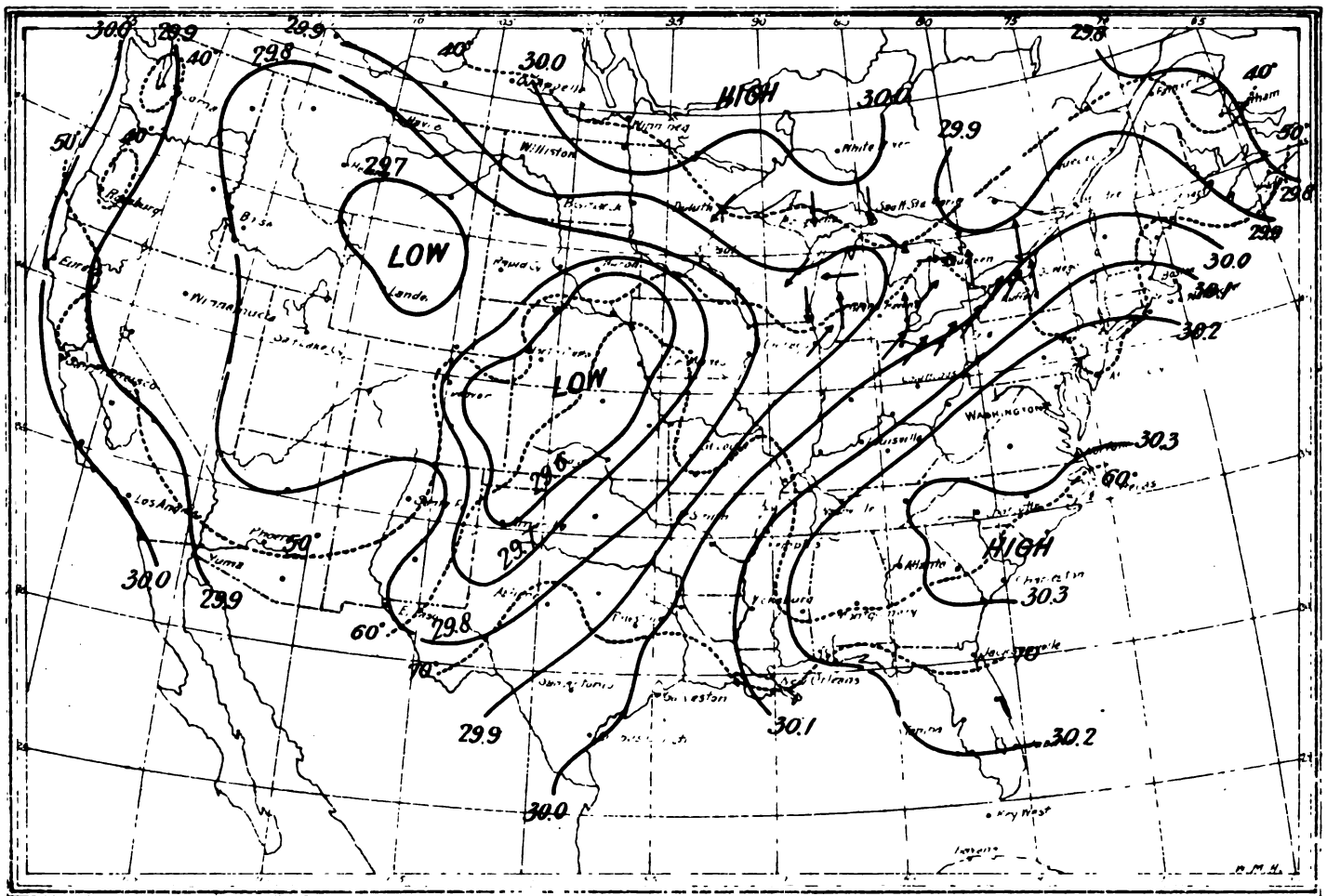


Chart 000X.

May 9, 1890—8 p. m.

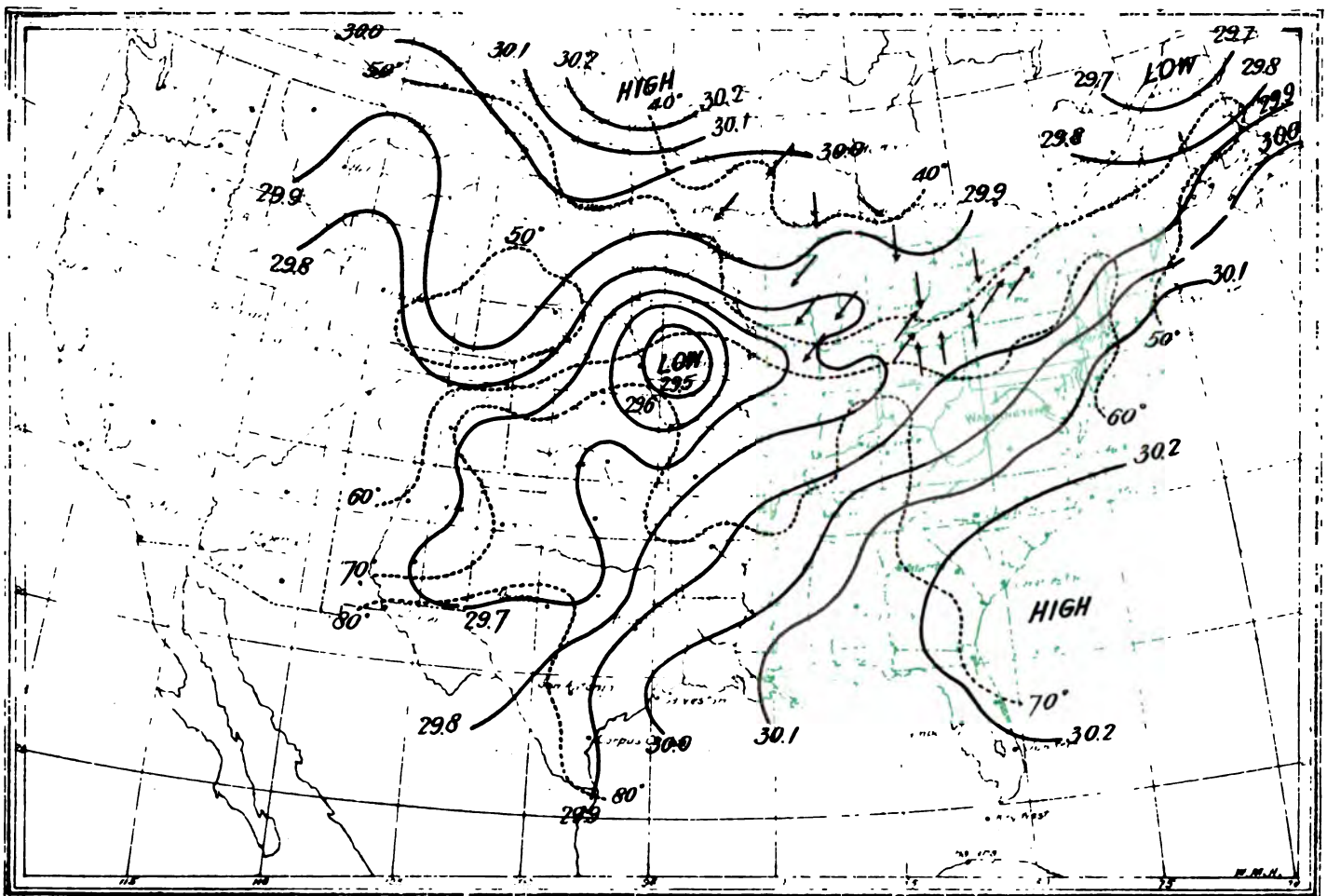


Chart OOOXI.

May 10, 1890—8 a. m.

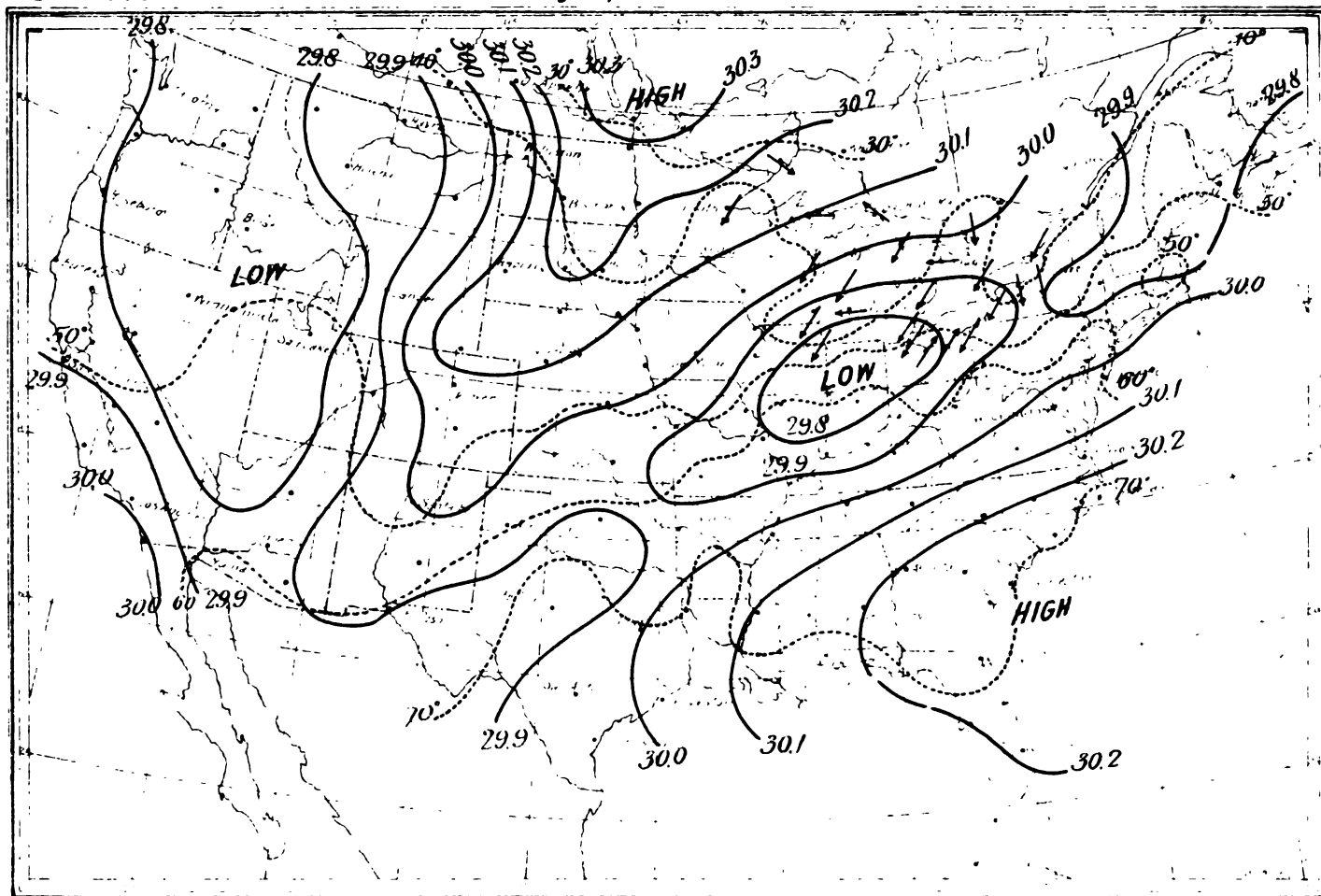


Chart OOOXII.

May 10, 1890—8 p. m.

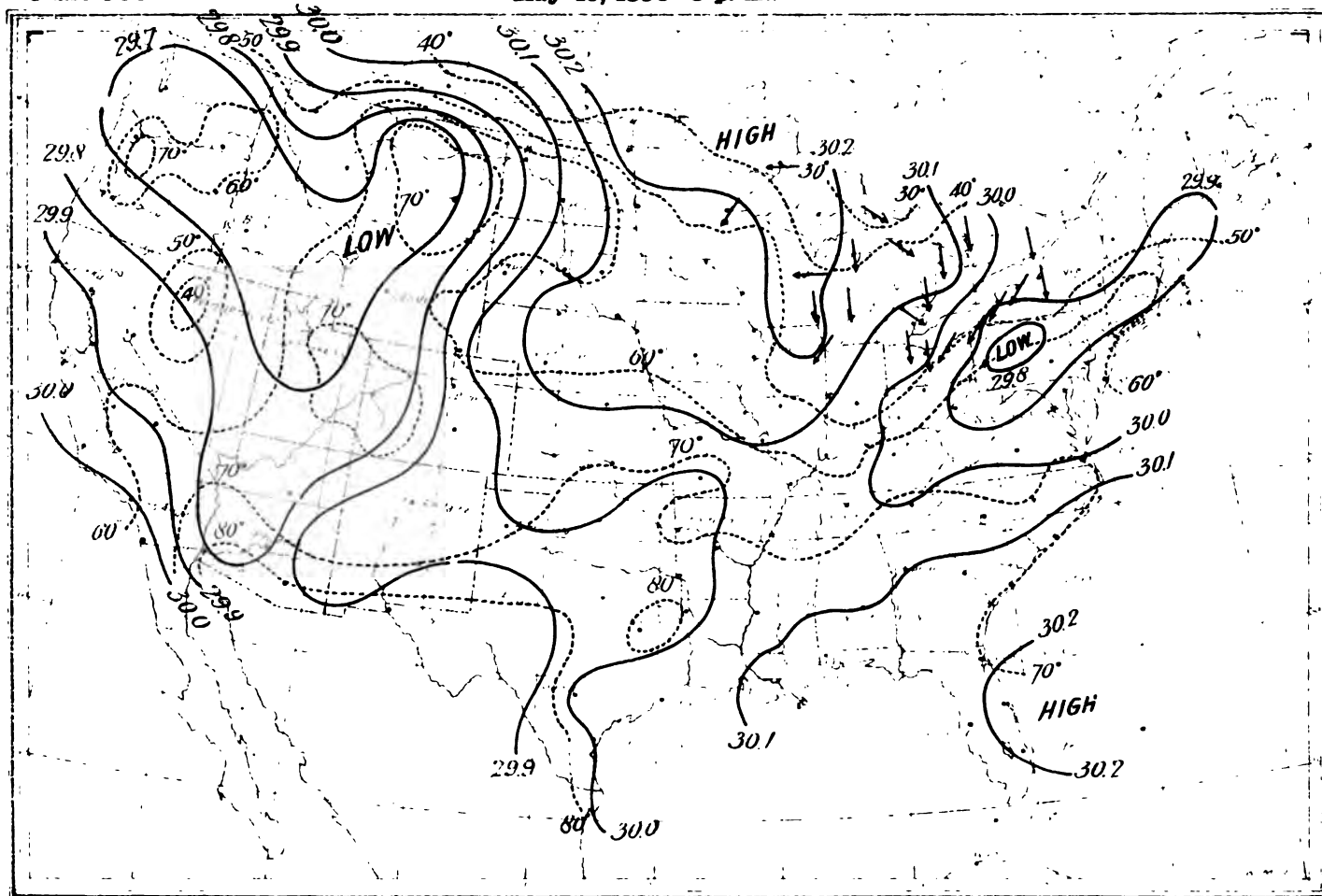


Chart CCOXIII.

May 15, 1890—8 a. m.

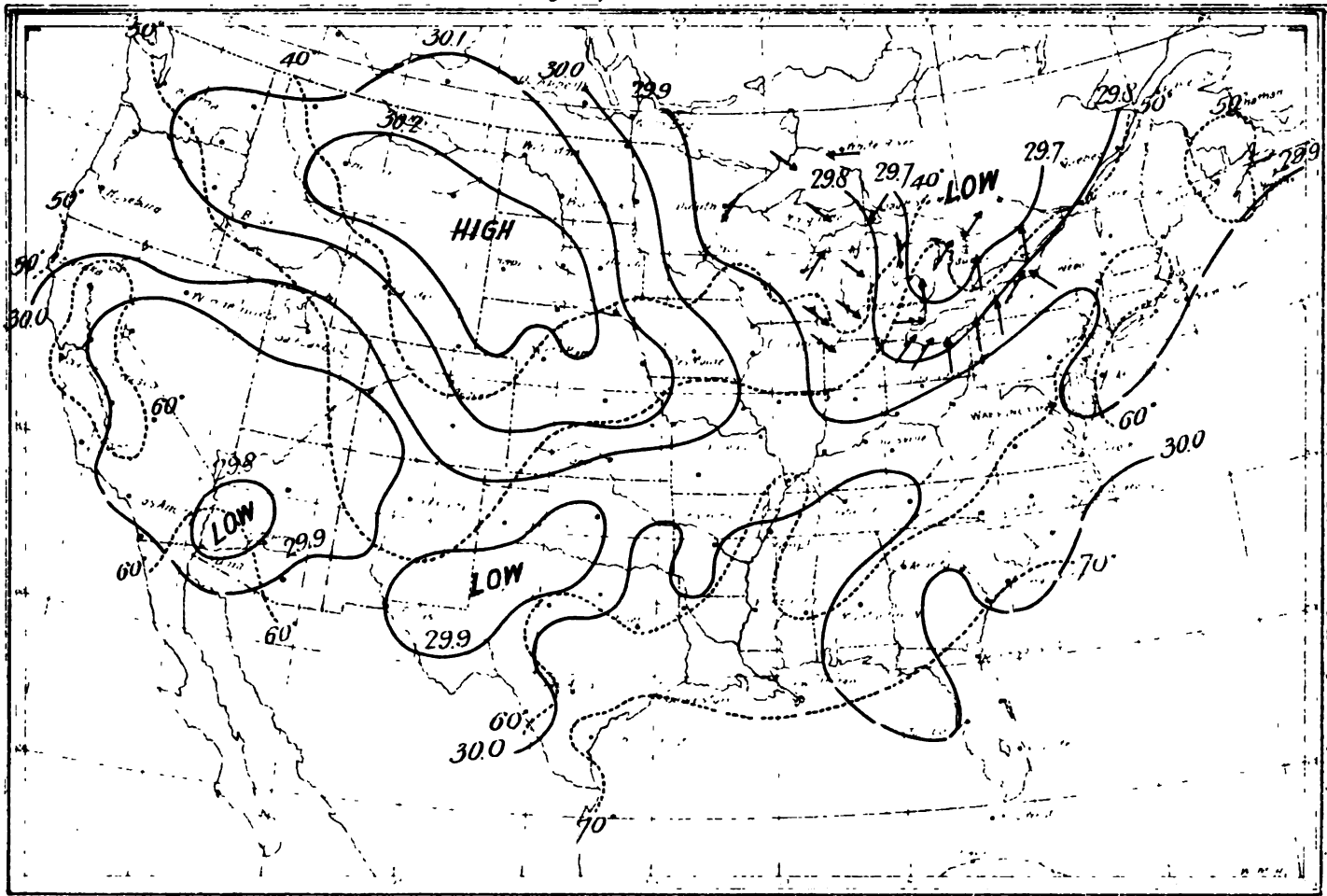


Chart CCOXIV.

May 15, 1890—8 p. m.

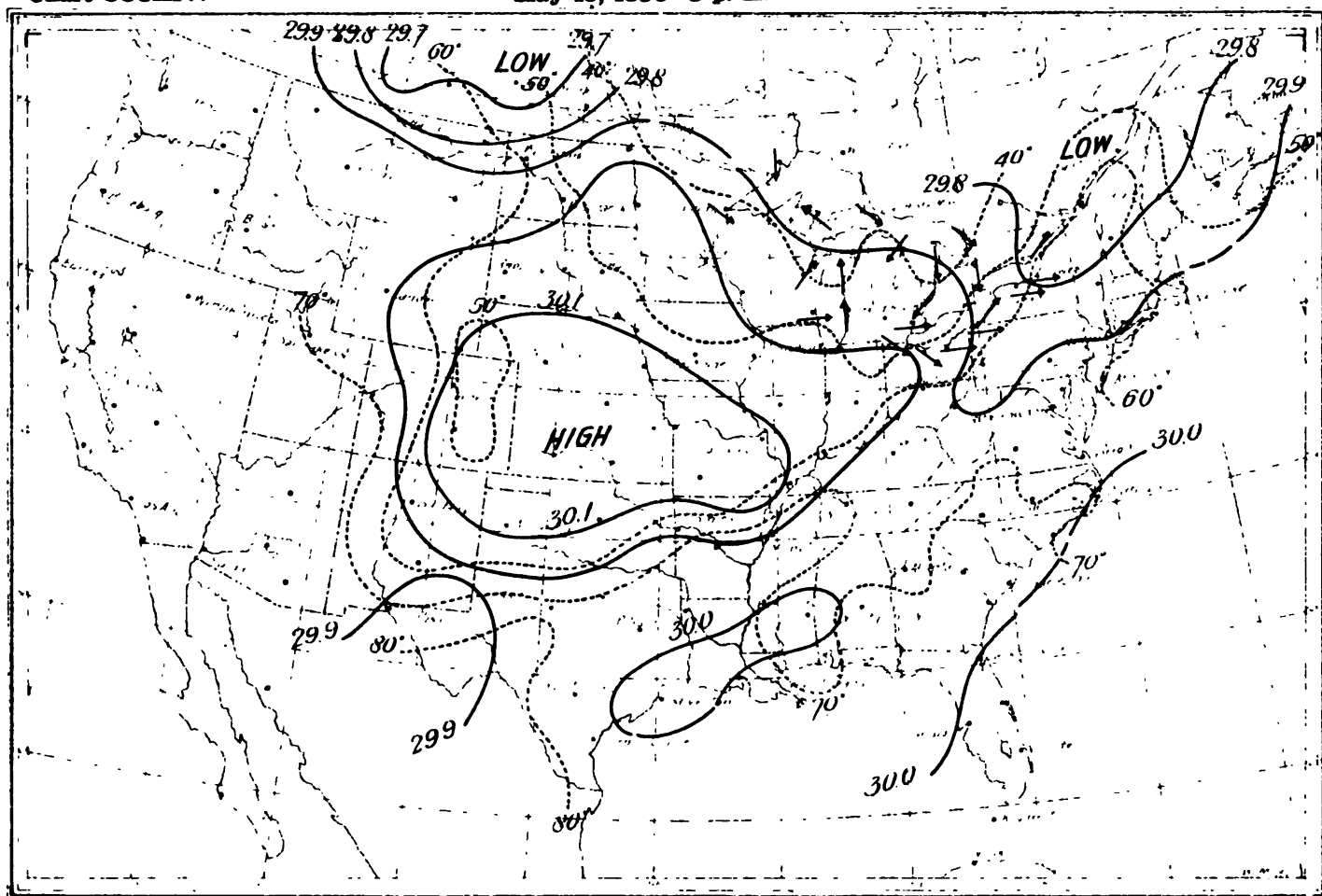


Chart CCOXV.

May 16, 1890—8 a. m.

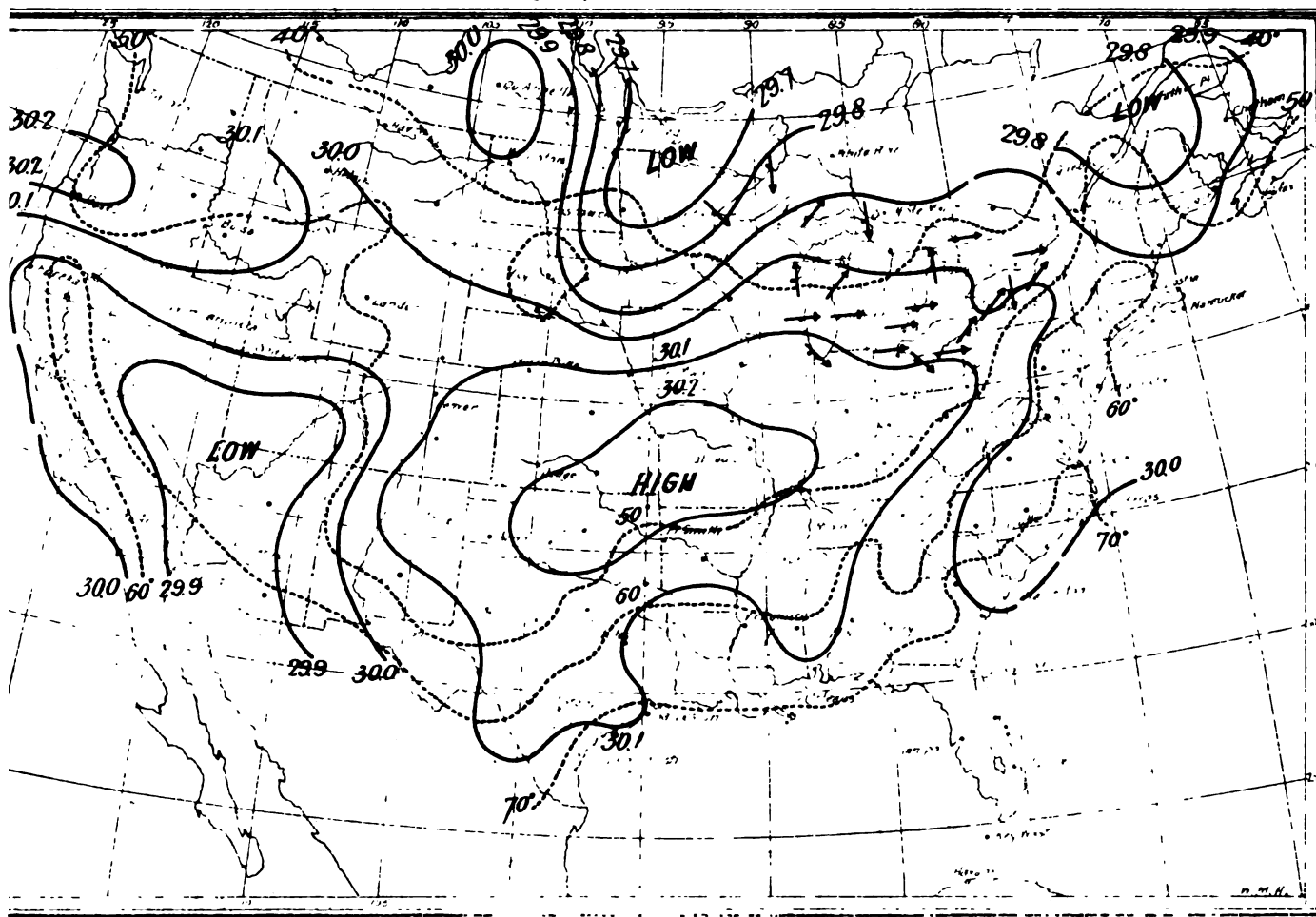


Chart CCOXVI.

May 16, 1890—8 p. m.

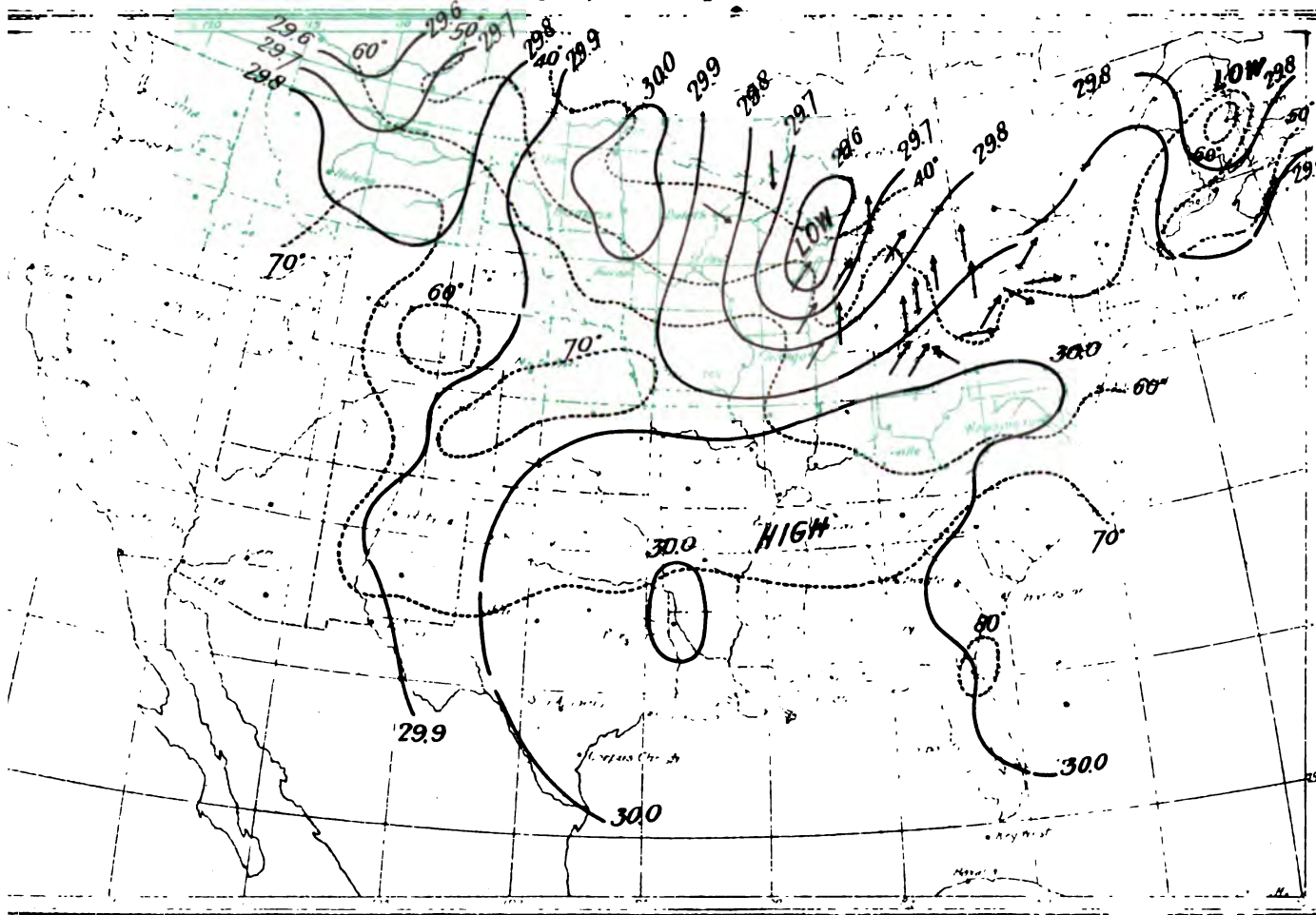


Chart COOXVII.

May 2, 1892—8 a. m.

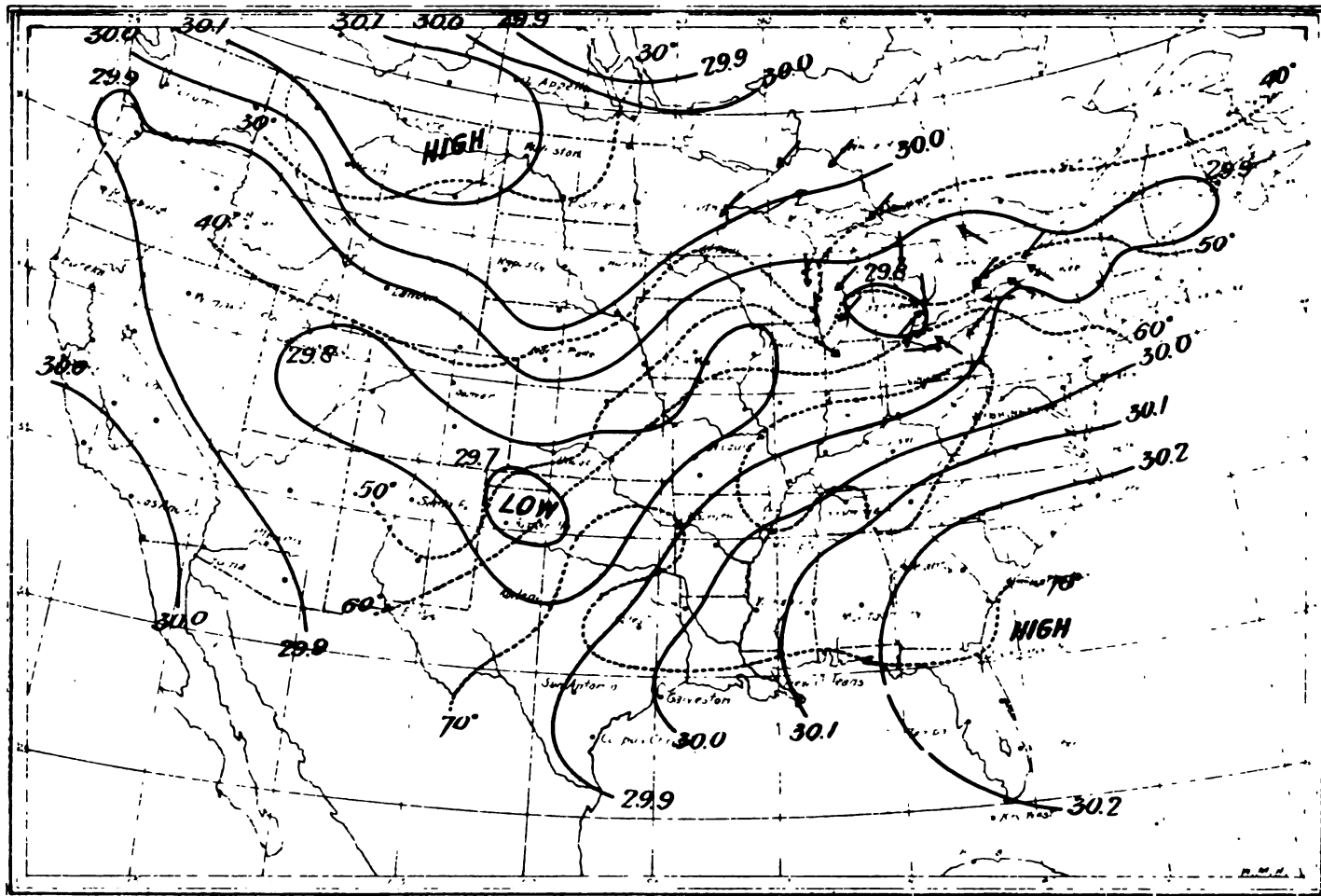


Chart COOXVIII.

May 2, 1892—8 p. m.

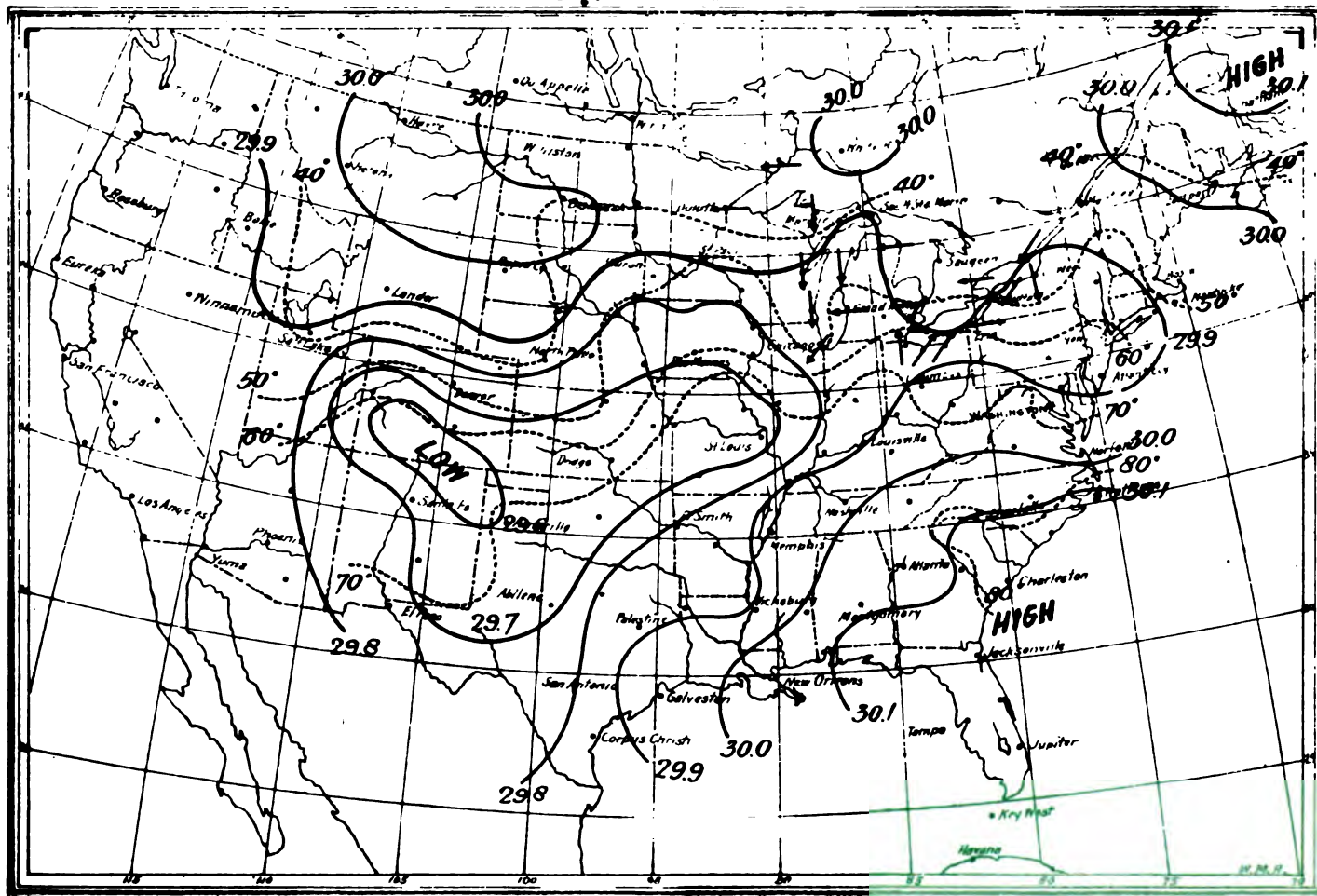


Chart CCOXIX.

May 3, 1892—8 a. m.

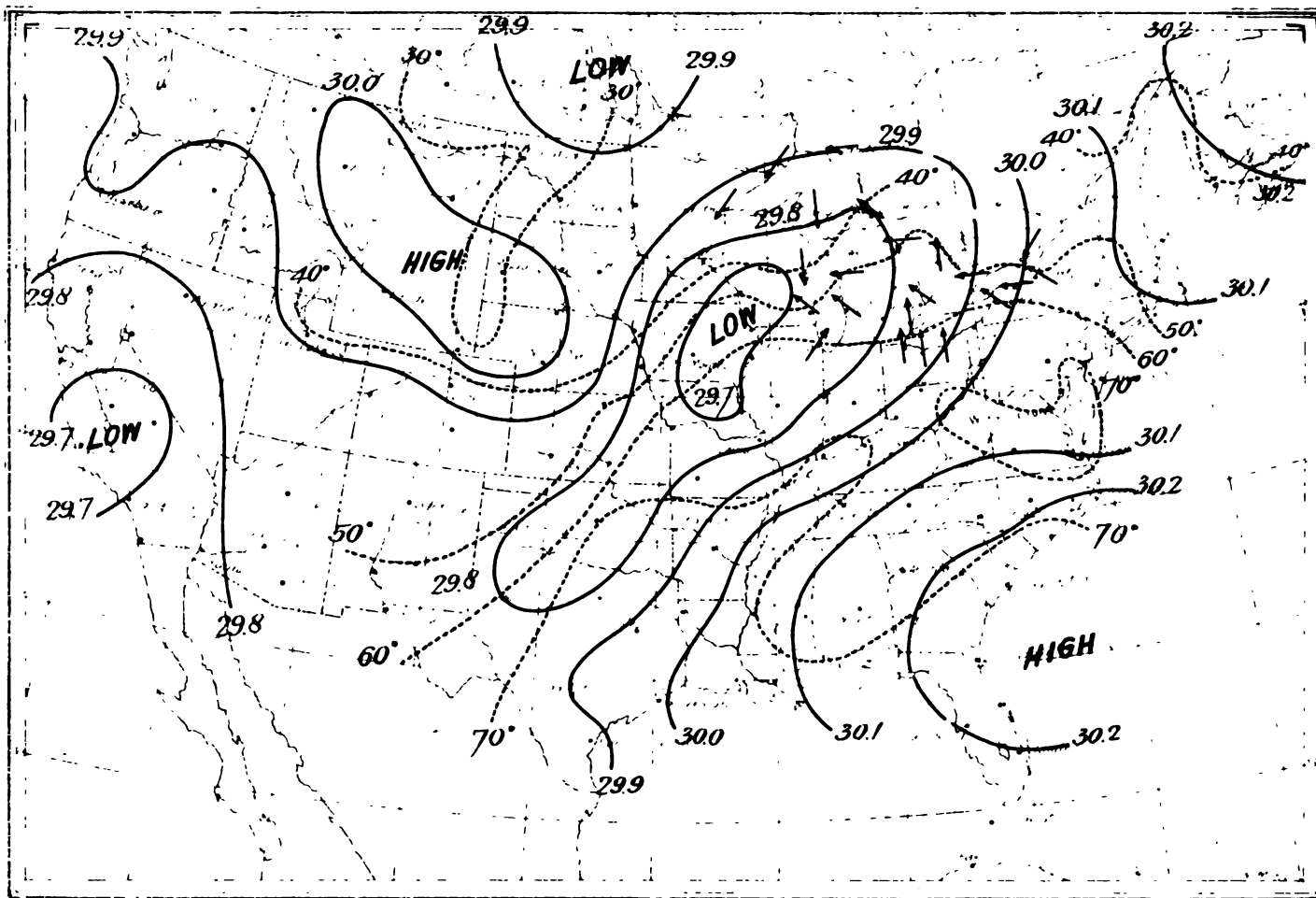


Chart CCOXX.

May 3, 1892—8 p. m.

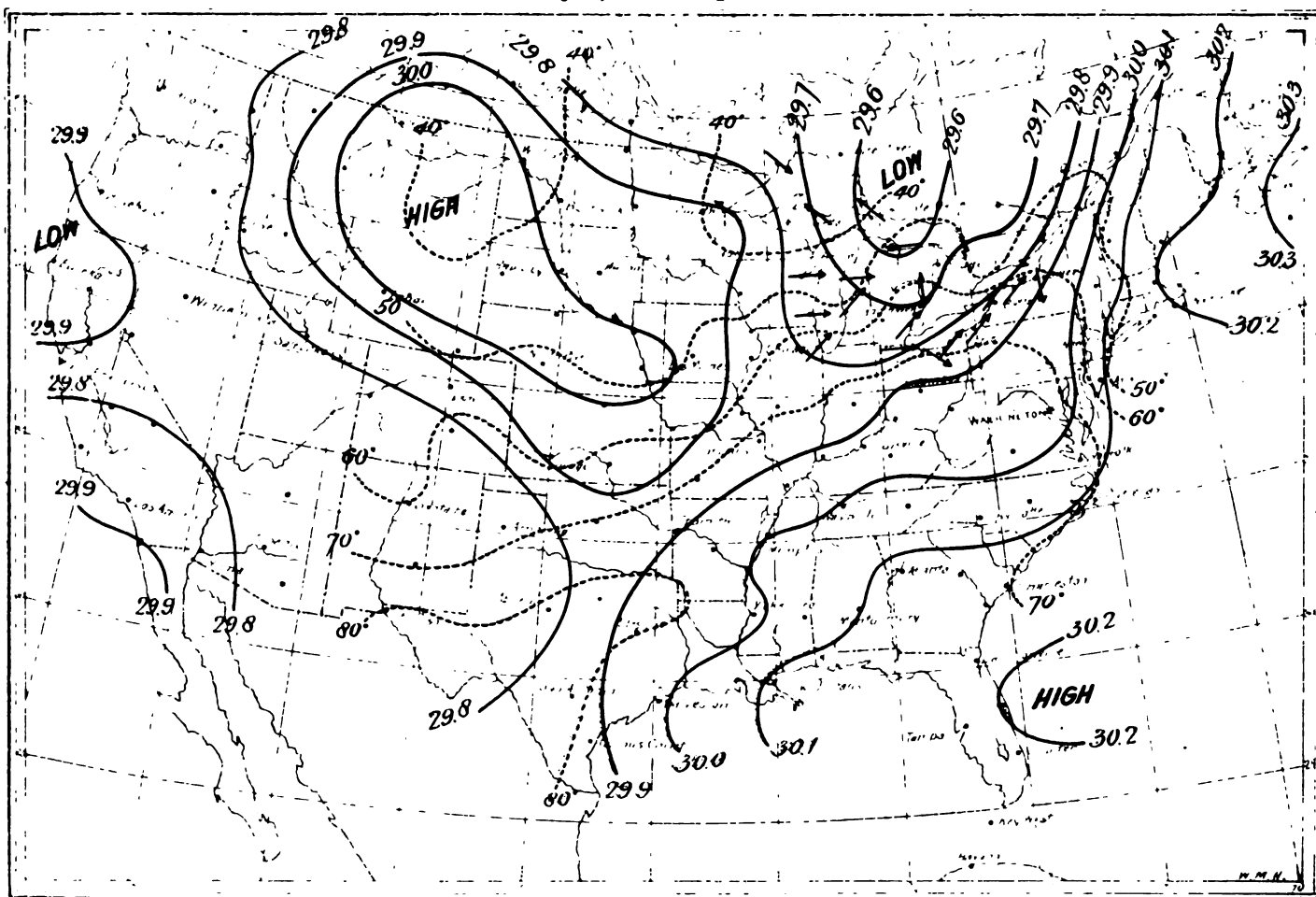


Chart CCOXXI.

May 18, 1892—8 a. m.

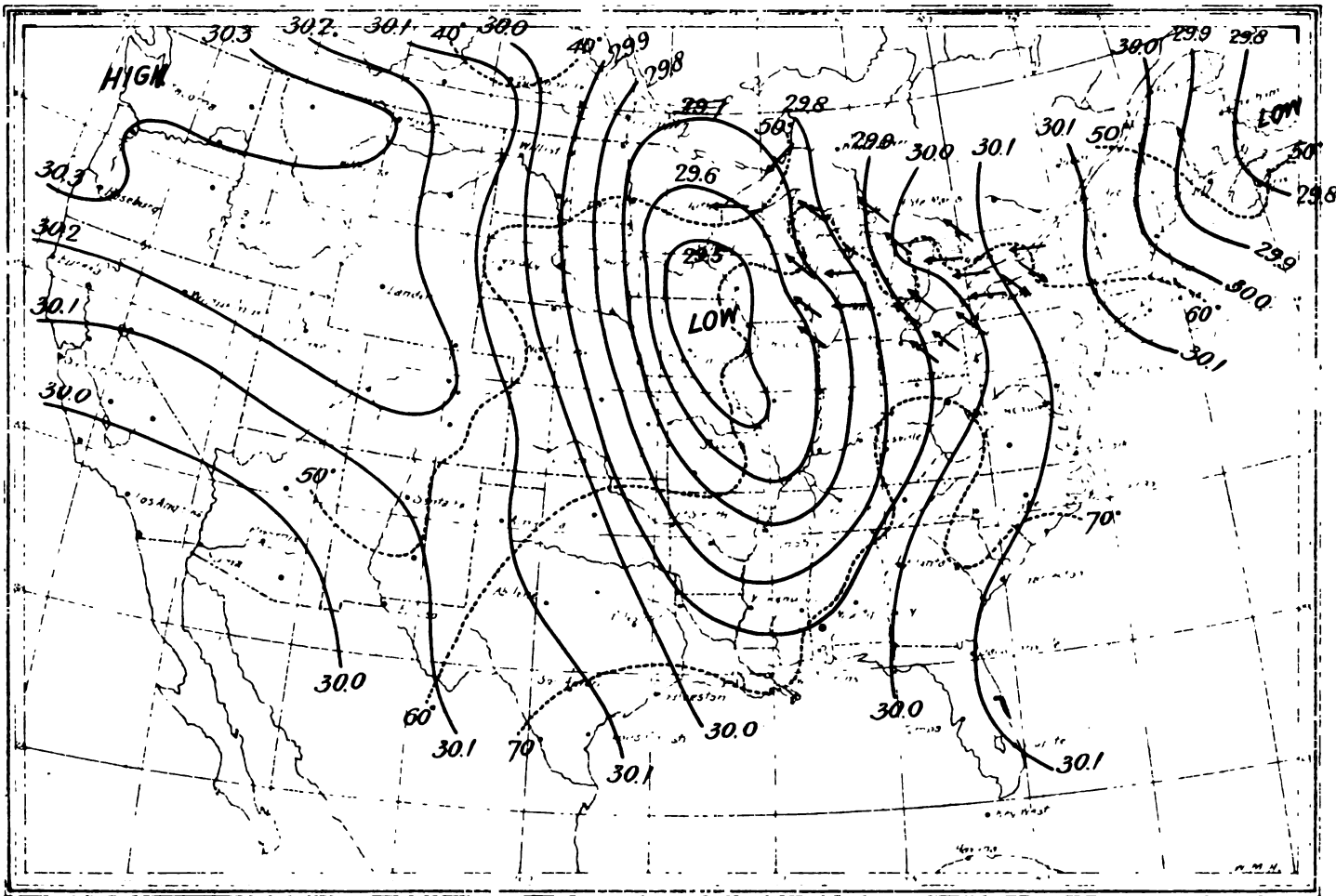


Chart CCOXXII.

May 18, 1892—8 p. m.

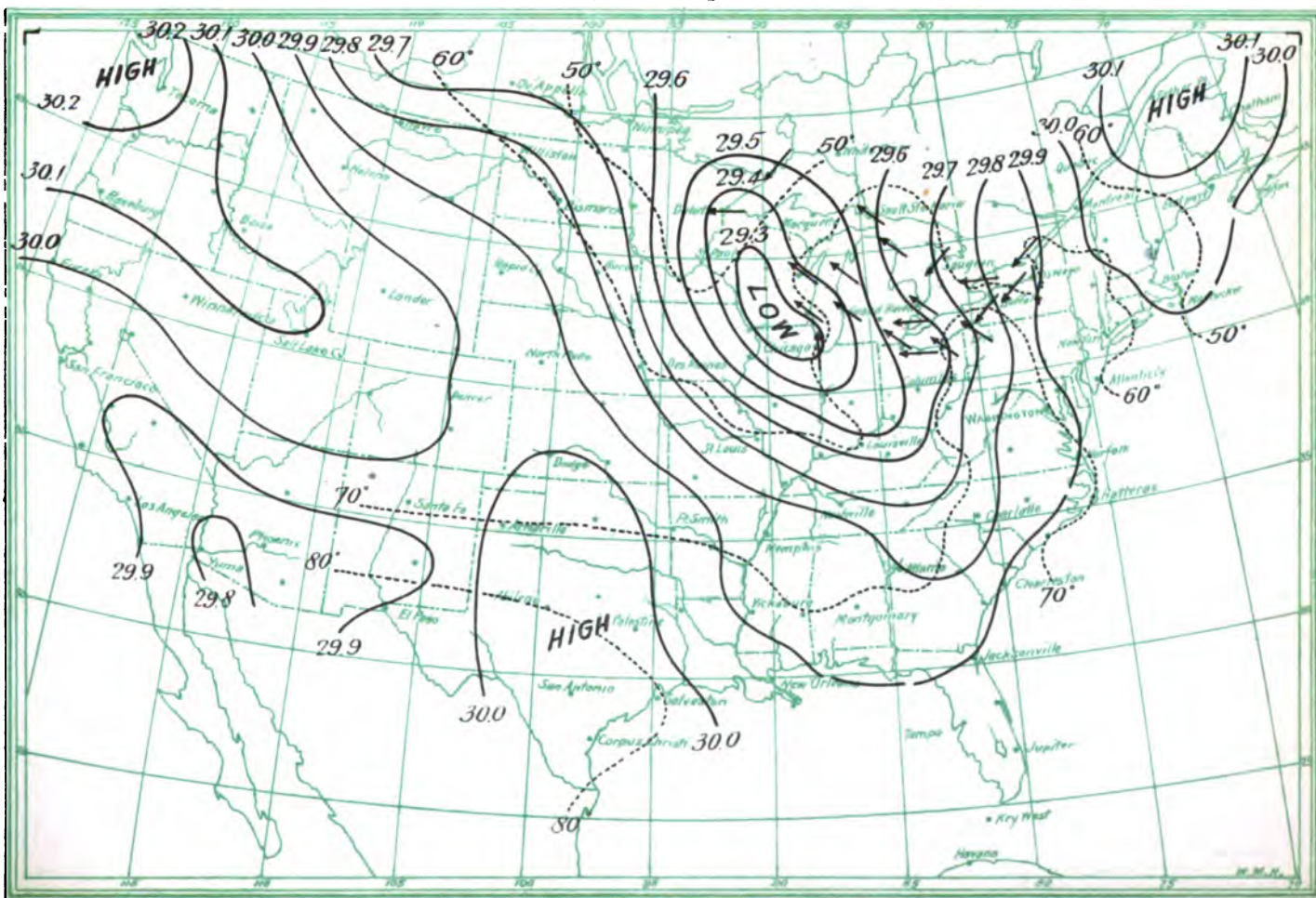


Chart OOOXXIII.

May 19, 1892—8 a. m.

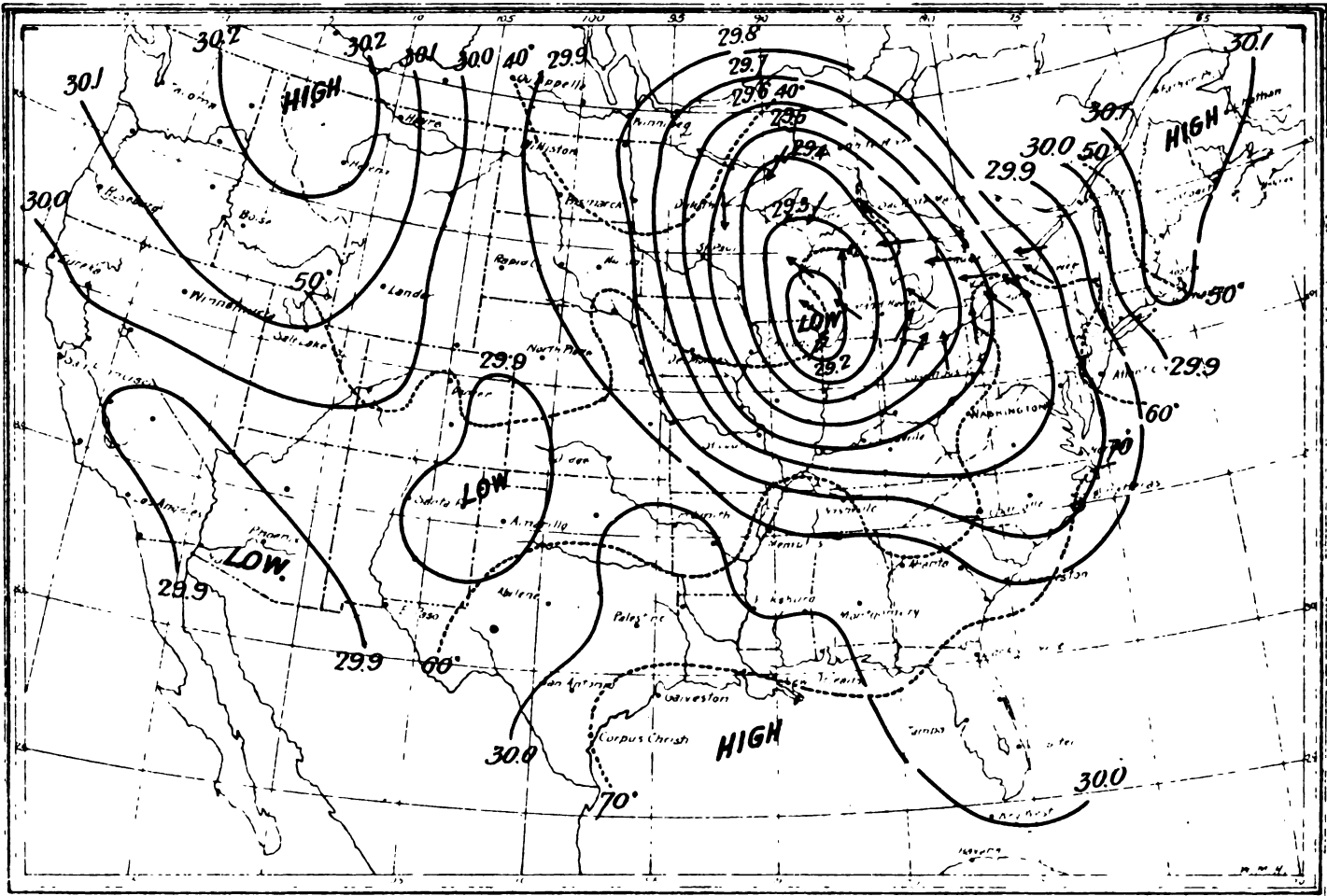


Chart OOOXXIV.

May 19, 1892—8 p. m.

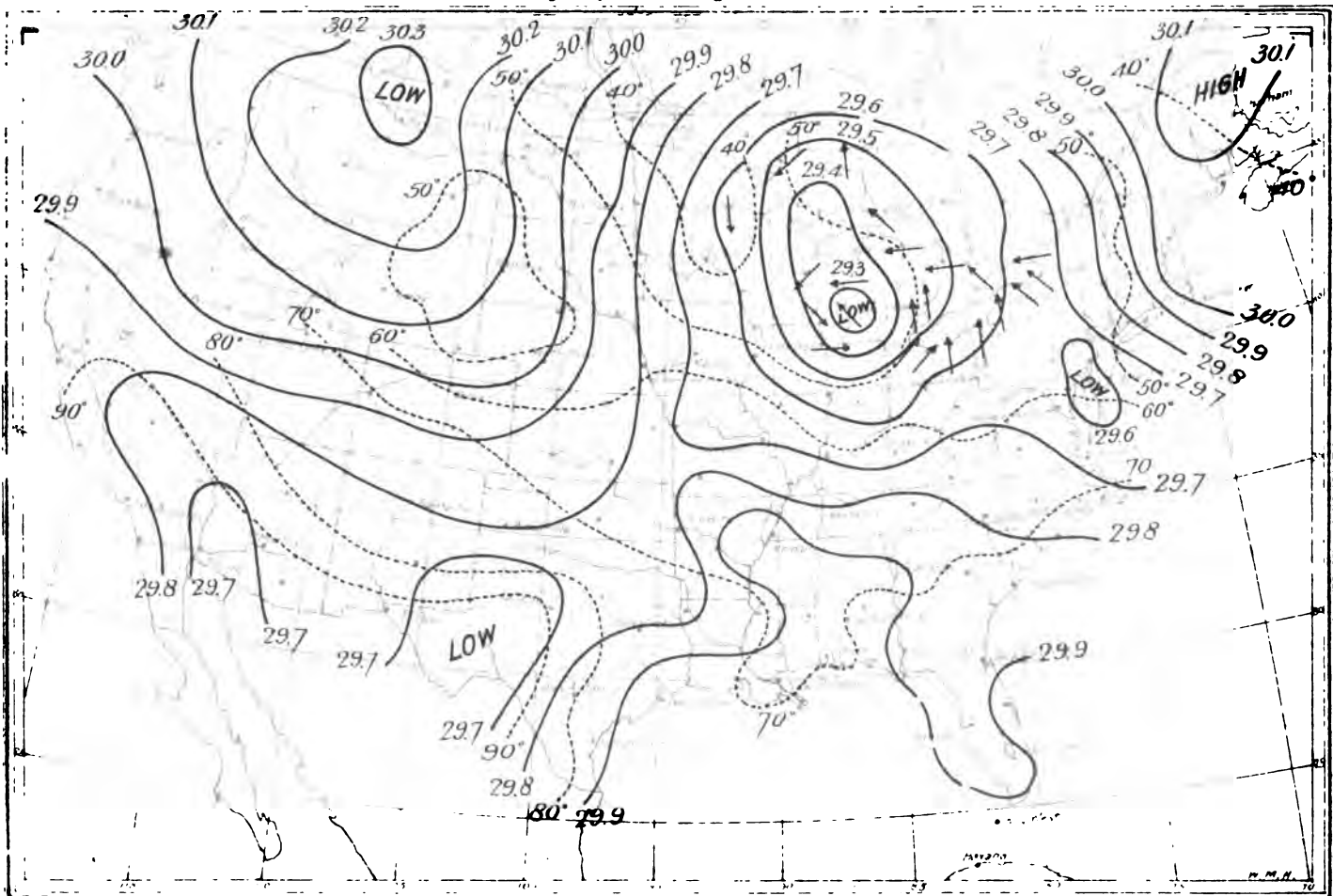


Chart CCOXXV.

May 14, 1898—8 a. m.

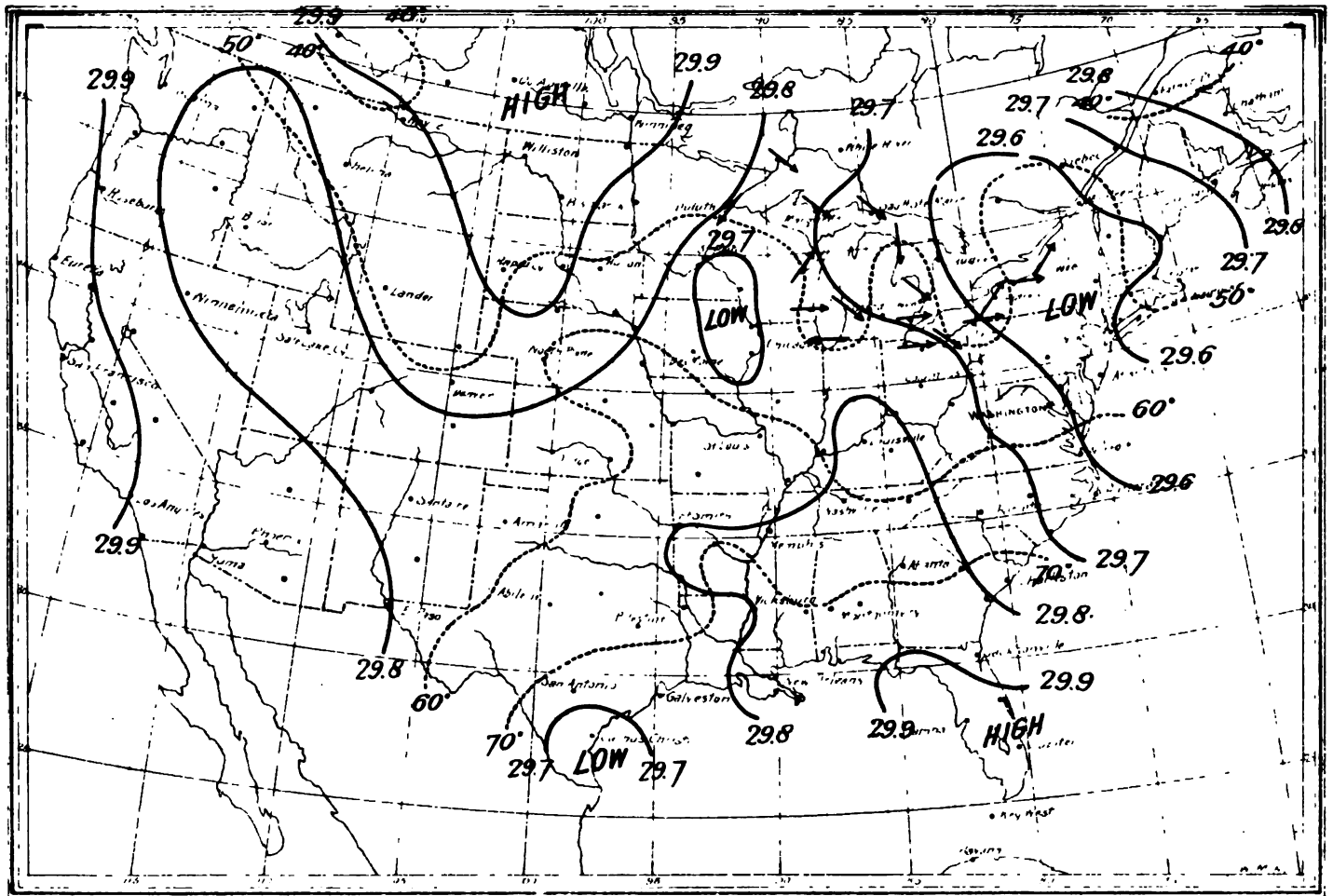


Chart CCOXXVI.

May 14, 1898—8 p. m.

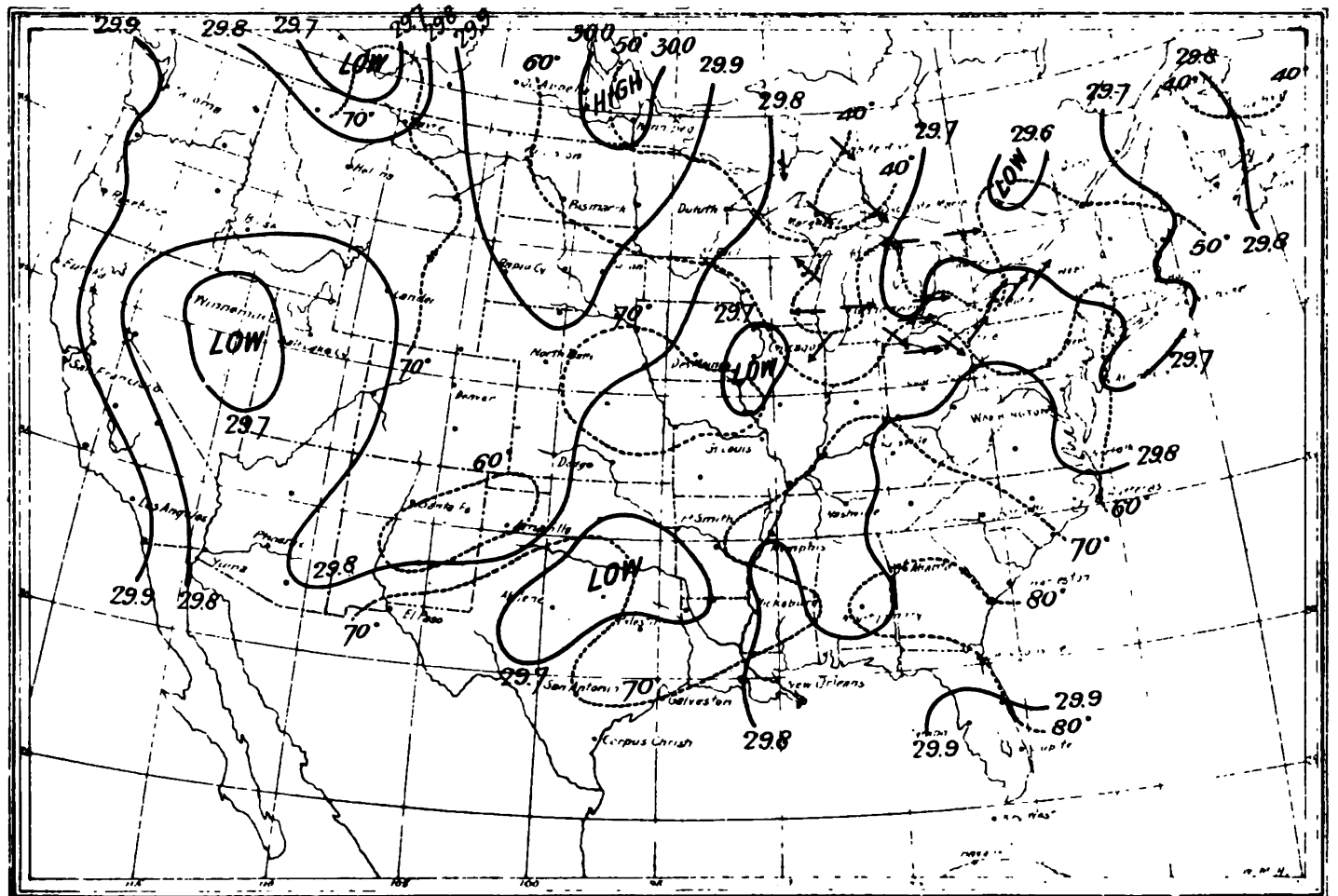


Chart CCCCXXVII.

May 15, 1893—8 a. m.

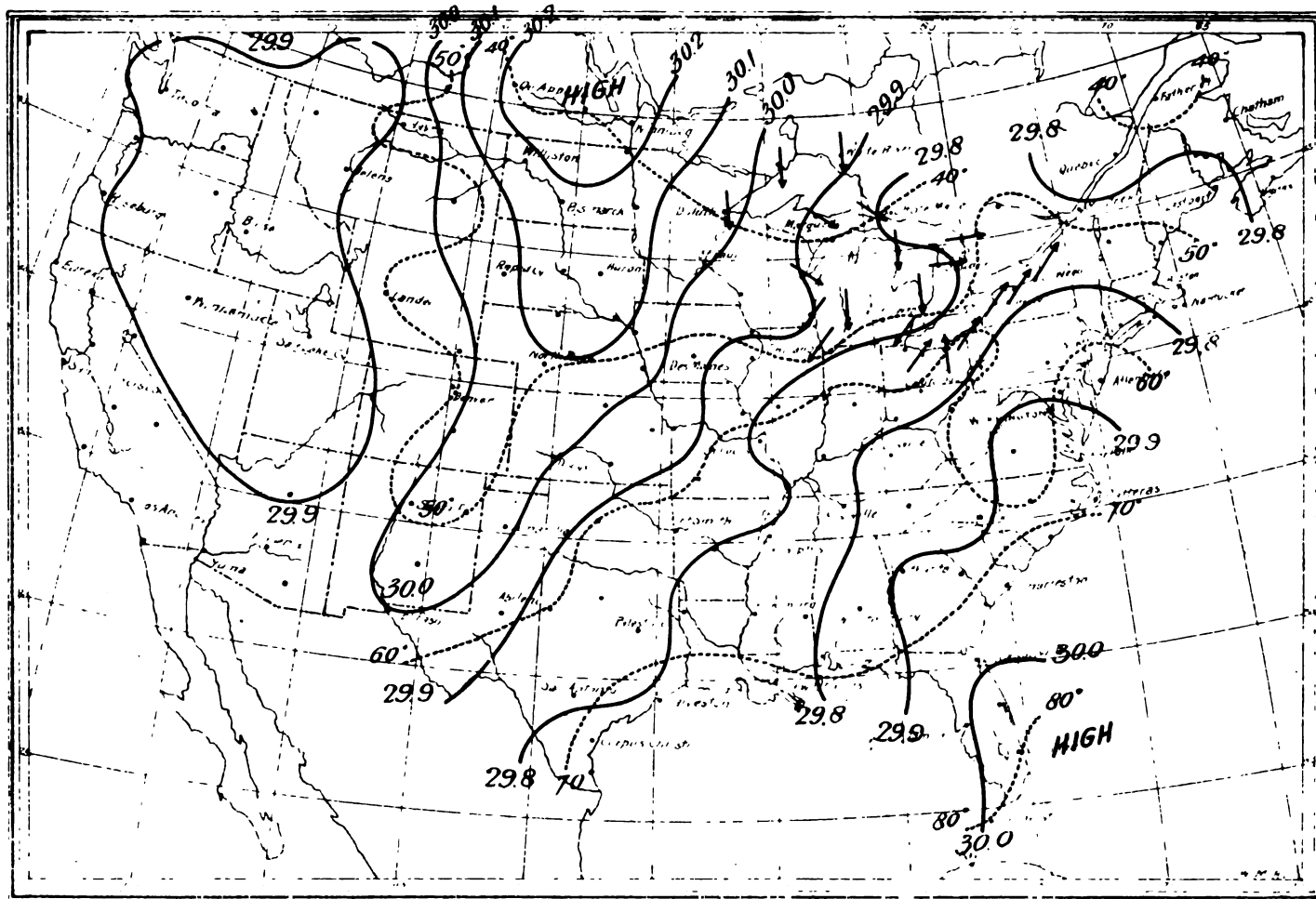


Chart CCCCXXVIII.

May 15, 1893—8 p. m.

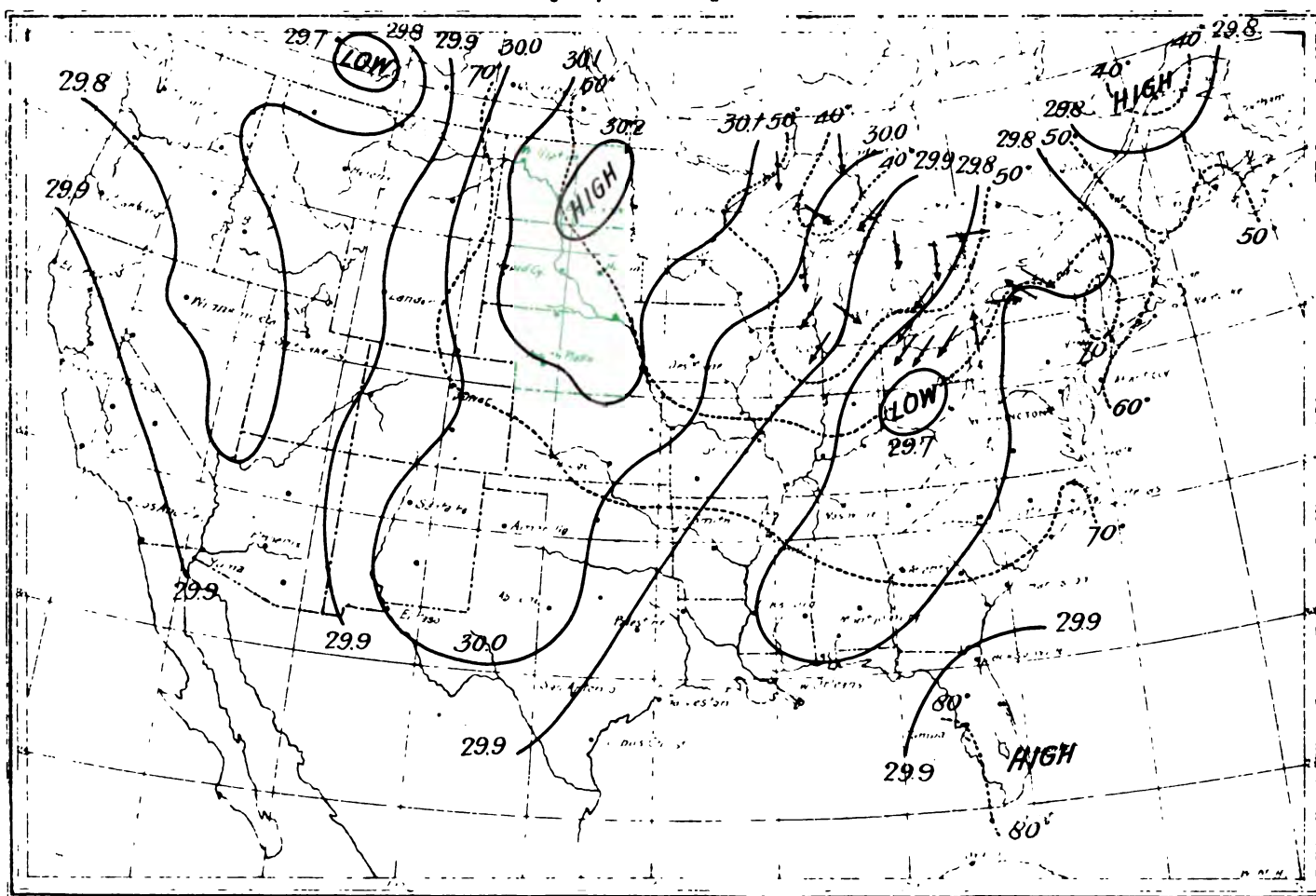


Chart CCOXXIX.

May 16, 1894—8 a. m.

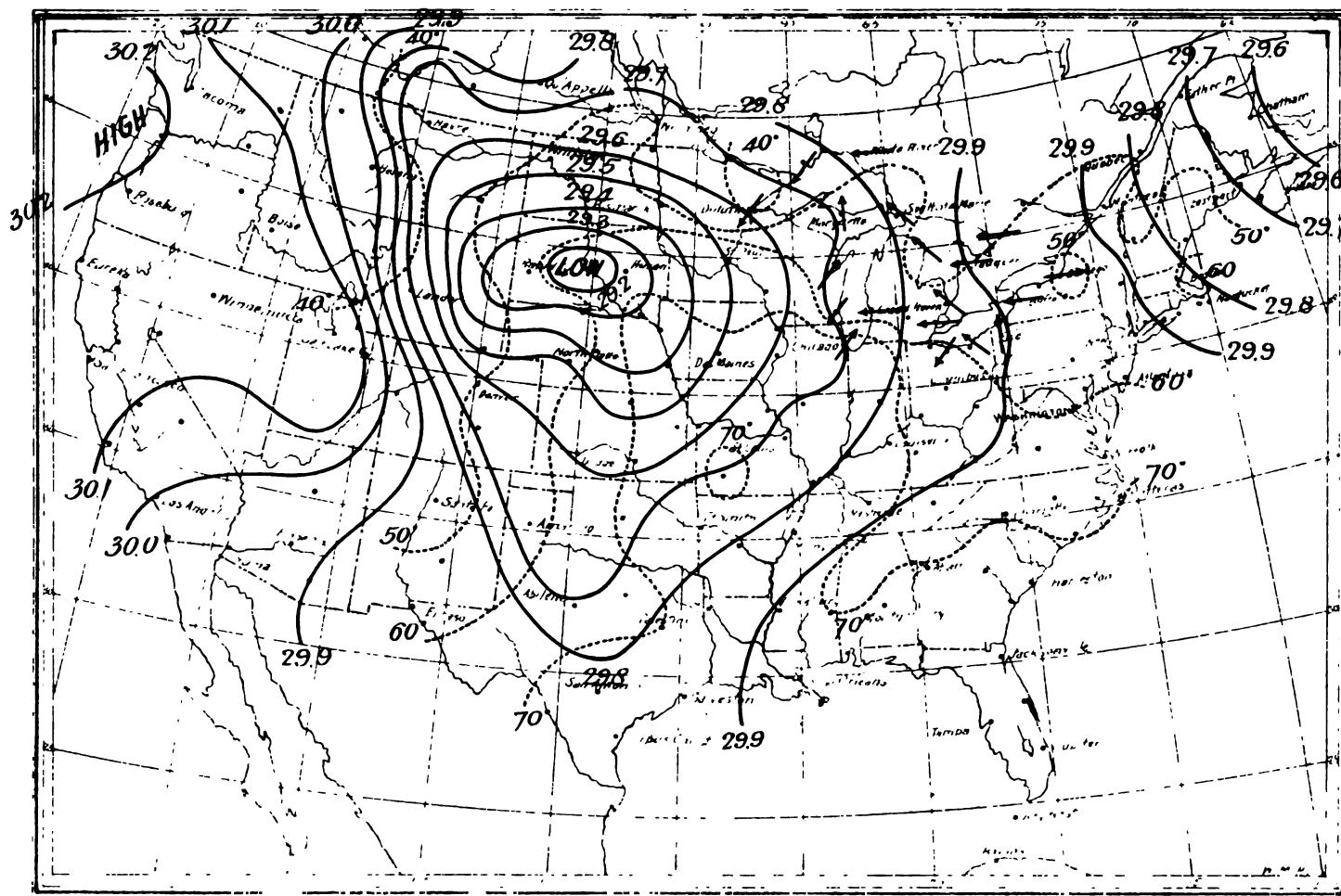


Chart CCOXXX.

May 16, 1894—8 p. m.

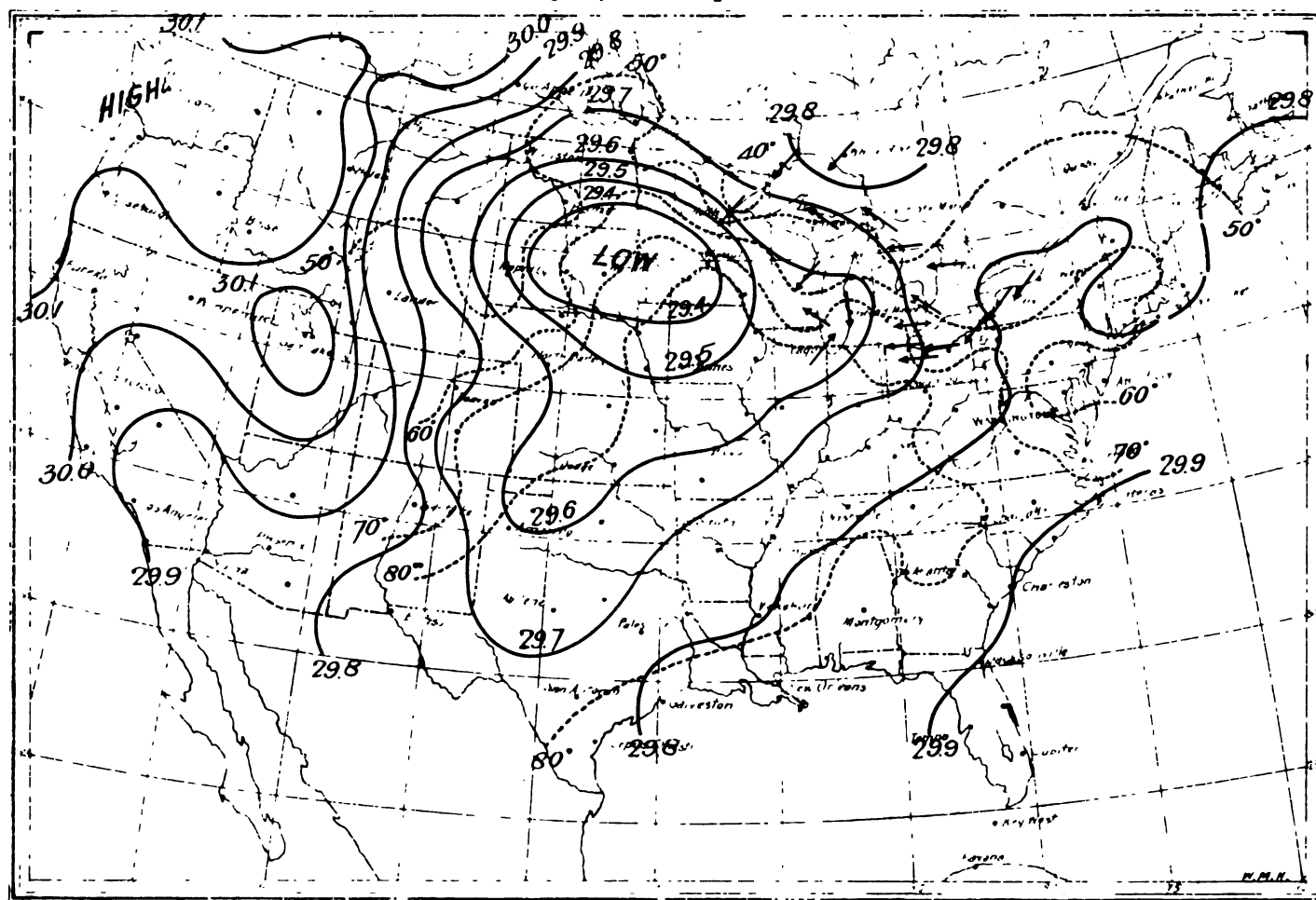


Chart CCOOXXXI.

May 17, 1894—8 a. m.

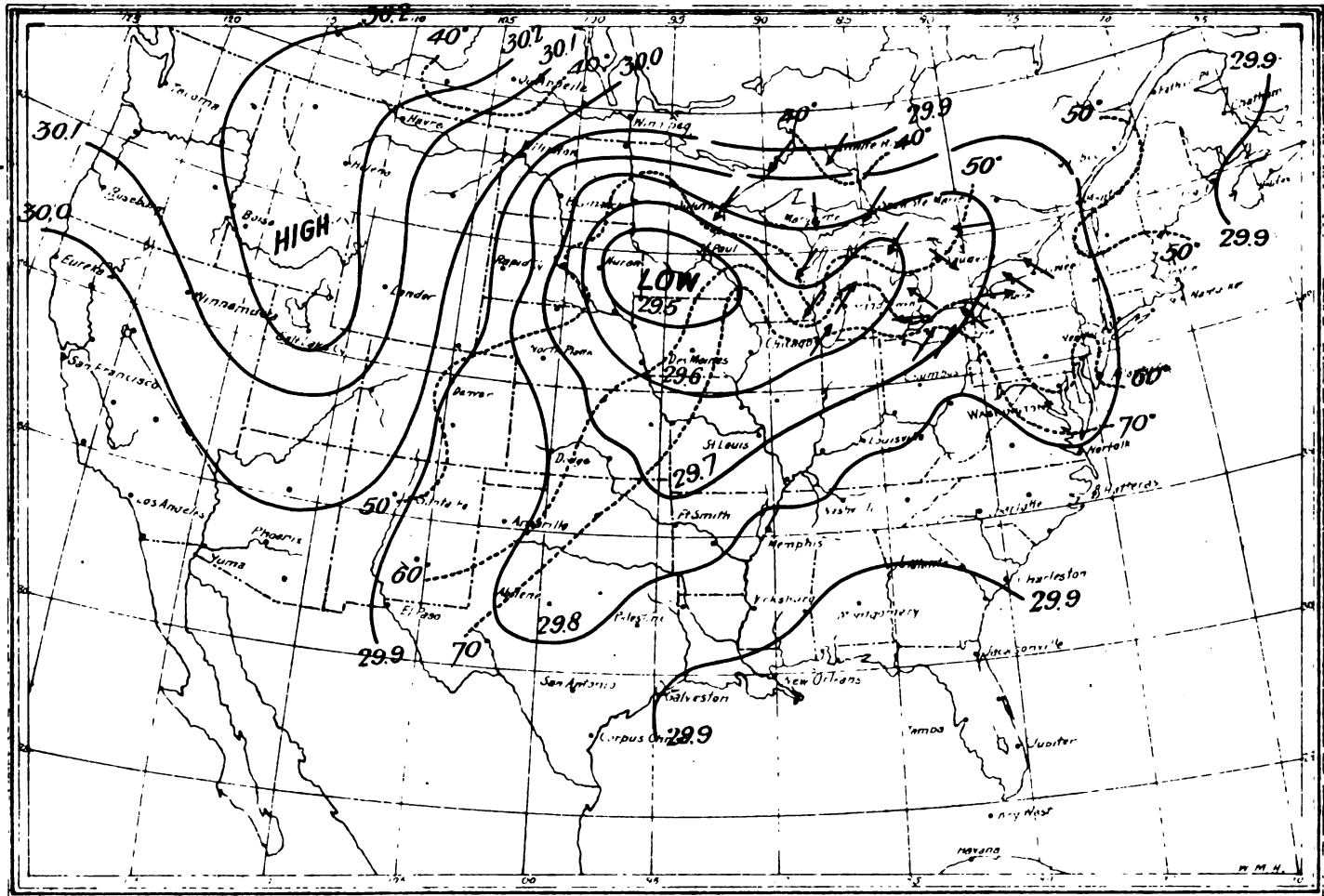


Chart CCOOXXXII.

May 17, 1894—8 p. m.

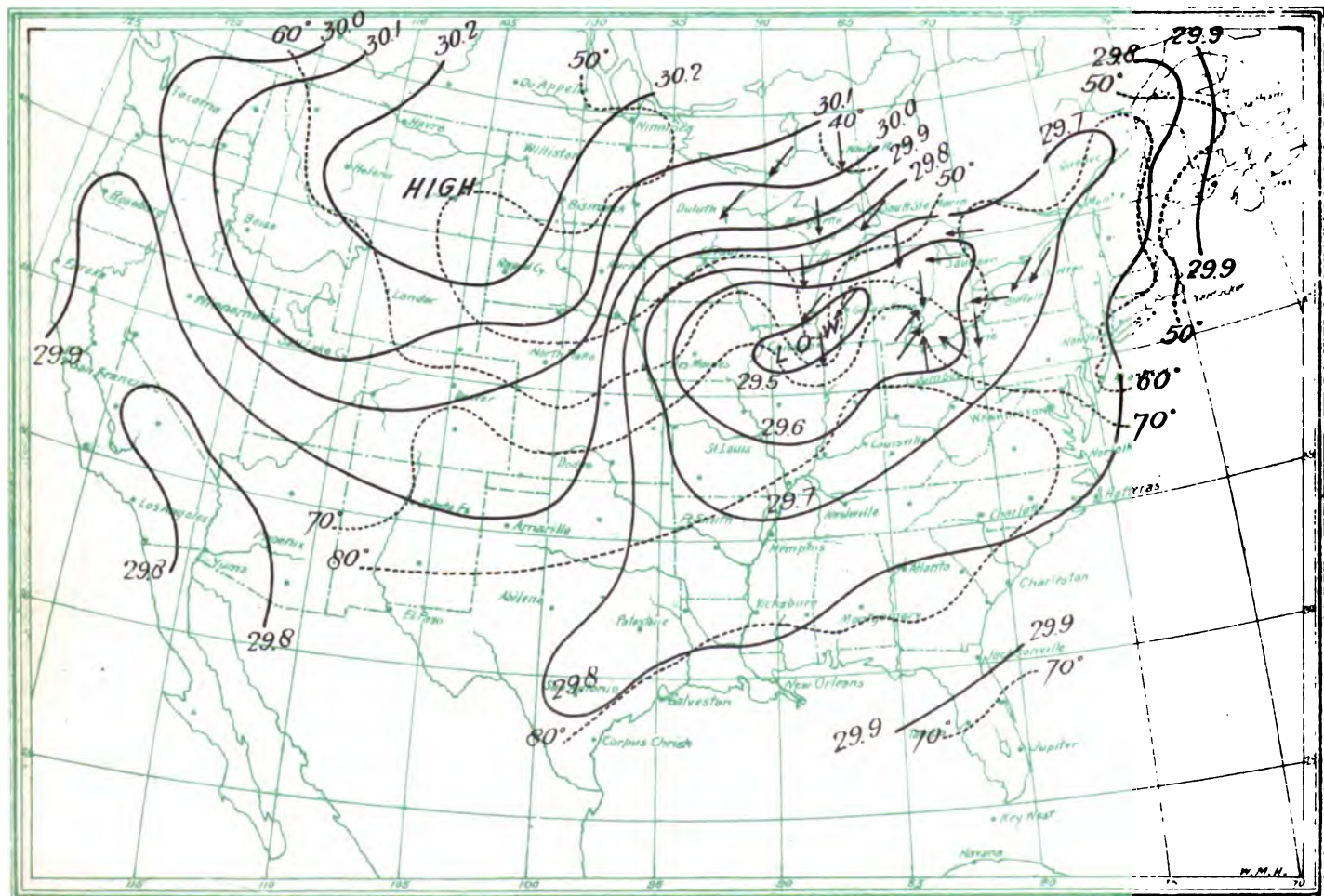


Chart CCCCXXXIII.

May 16, 1896—8 a. m.

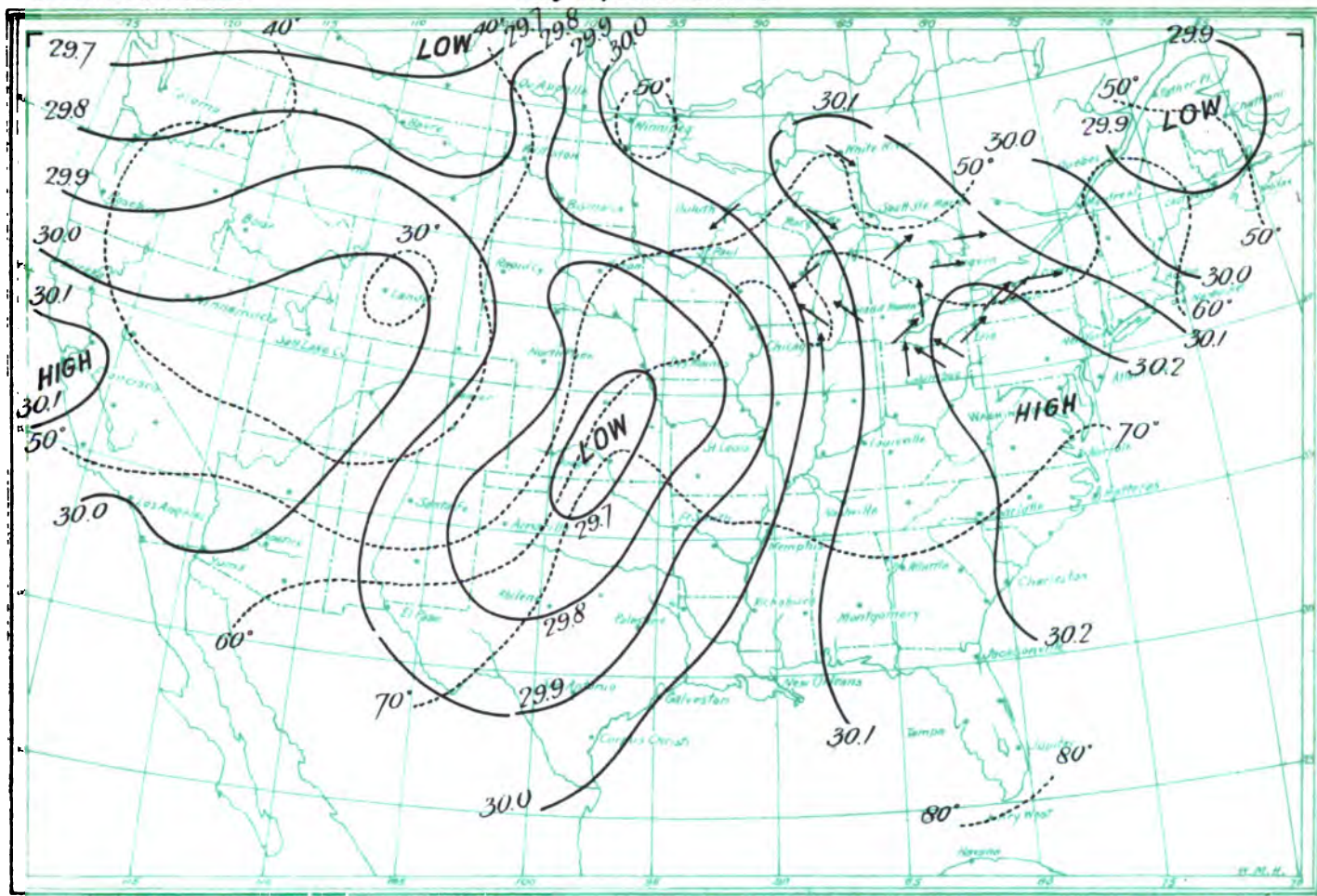


Chart CCCCXXXIV.

May 16, 1896—8 p. m.

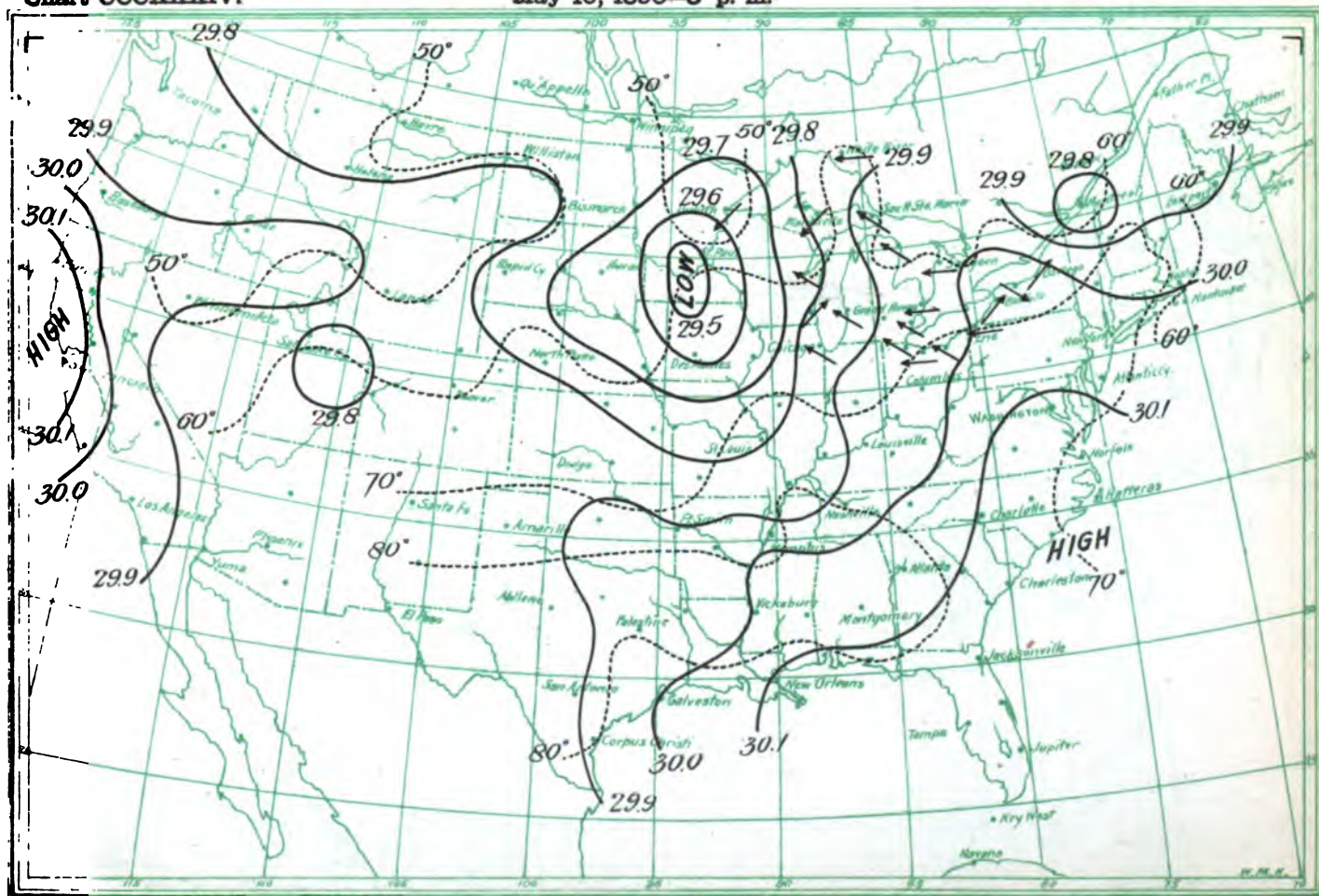


Chart CCCCXXXV.

May 17, 1896—8 a. m.

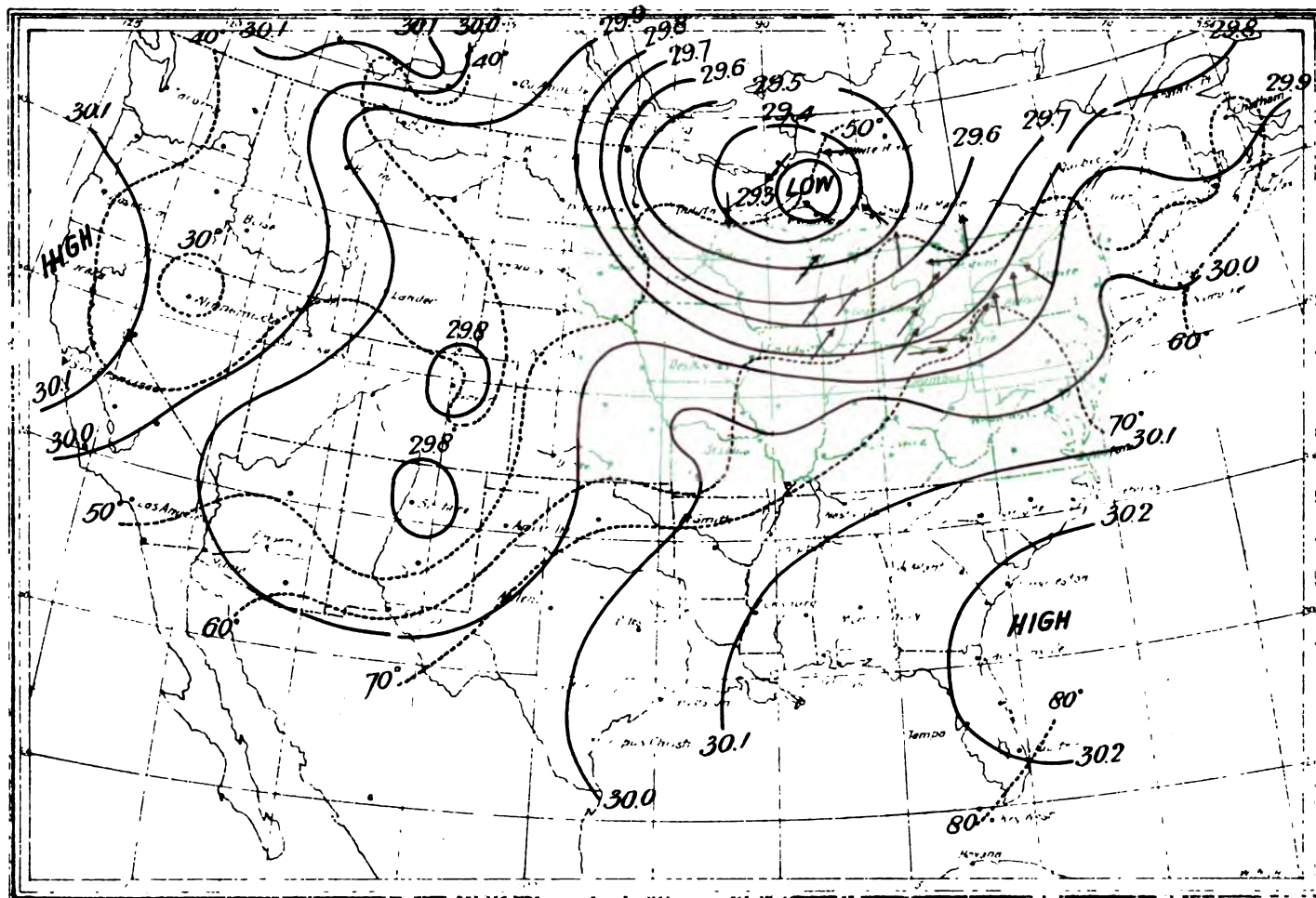


Chart CCCCXXXVI.

May 17, 1896—8 p. m.

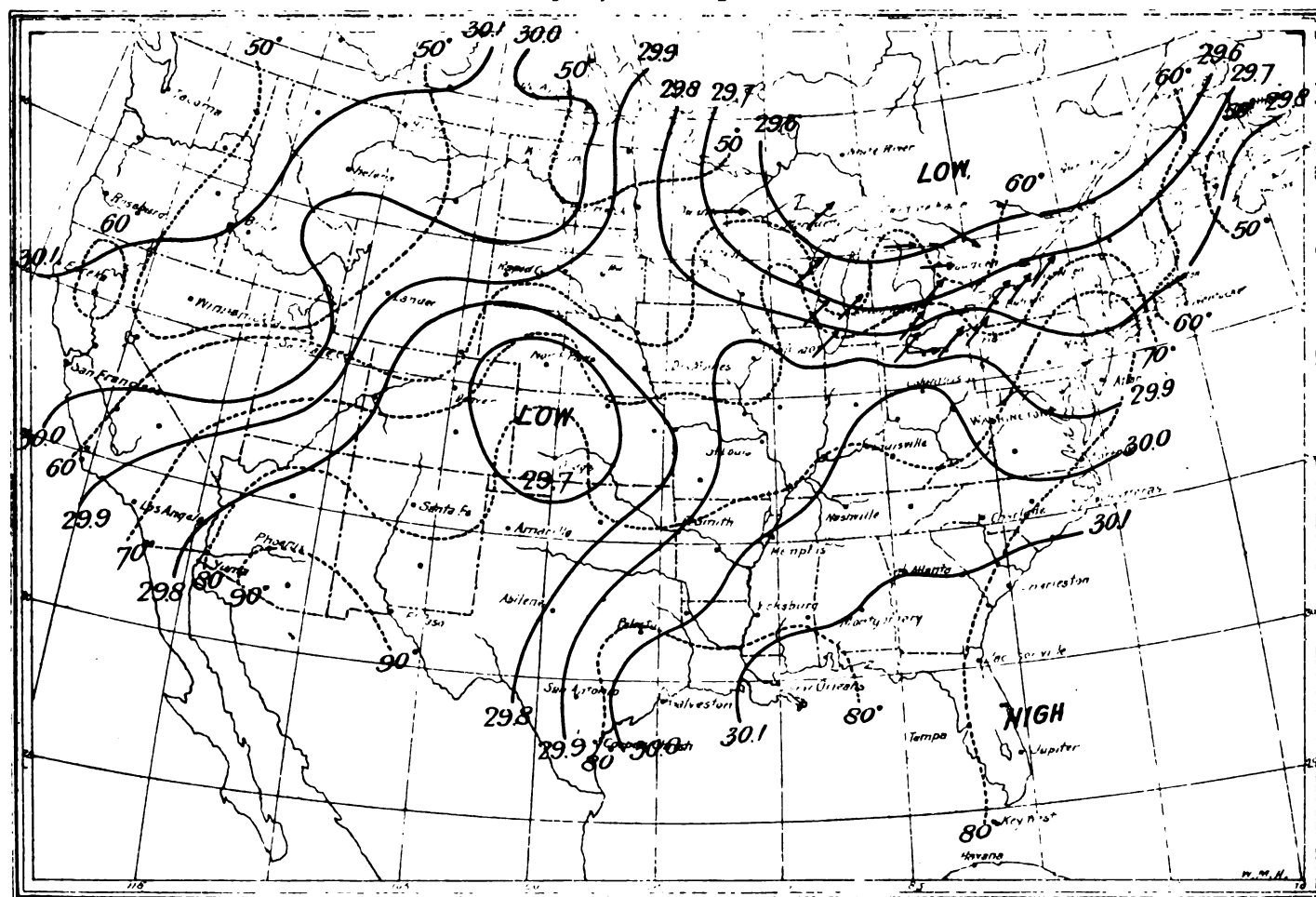


Chart CCCCXXVII.

May 24, 1896—8 a. m.

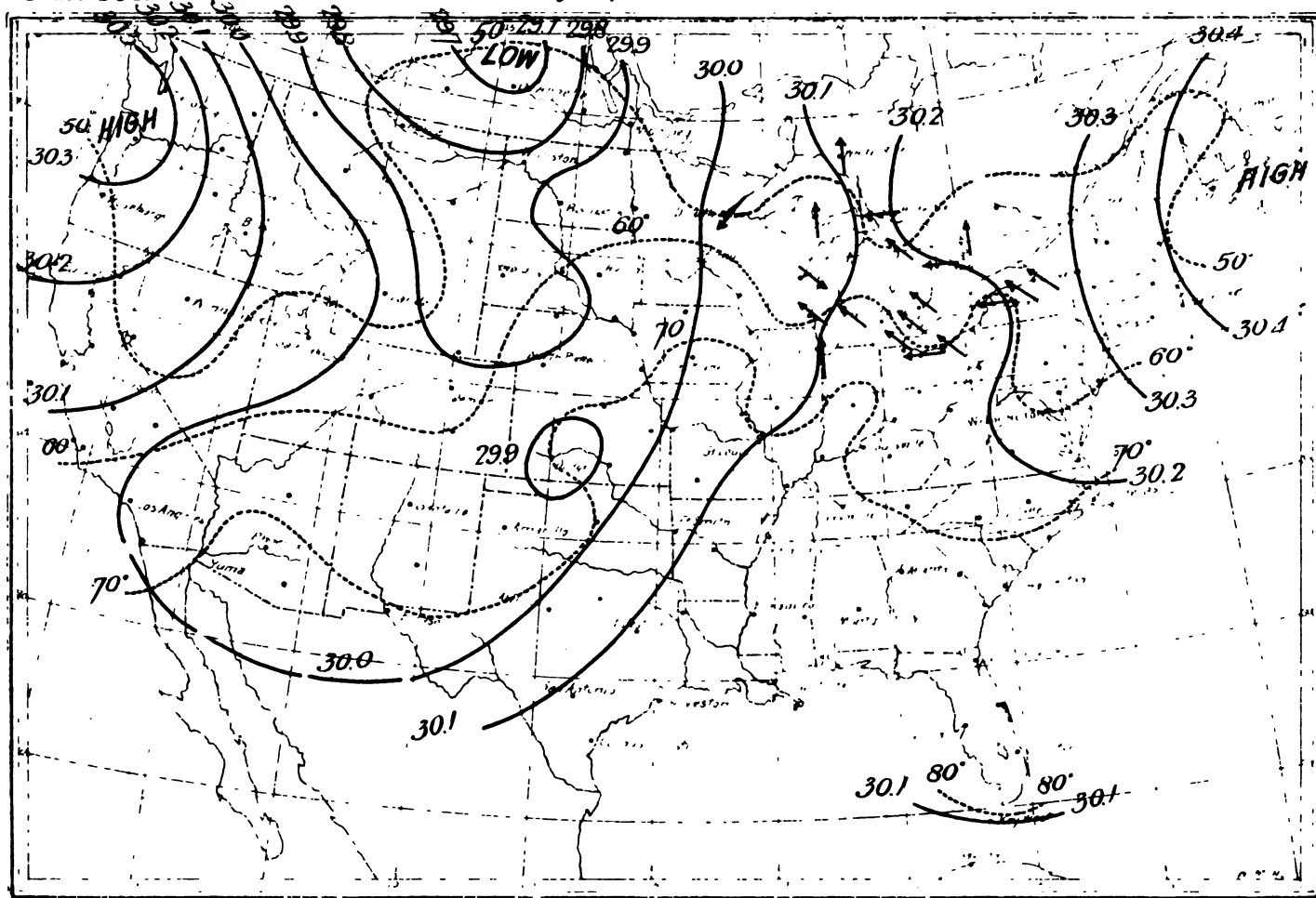


Chart CCCCXXVIII.

May 24, 1896—8 p. m.

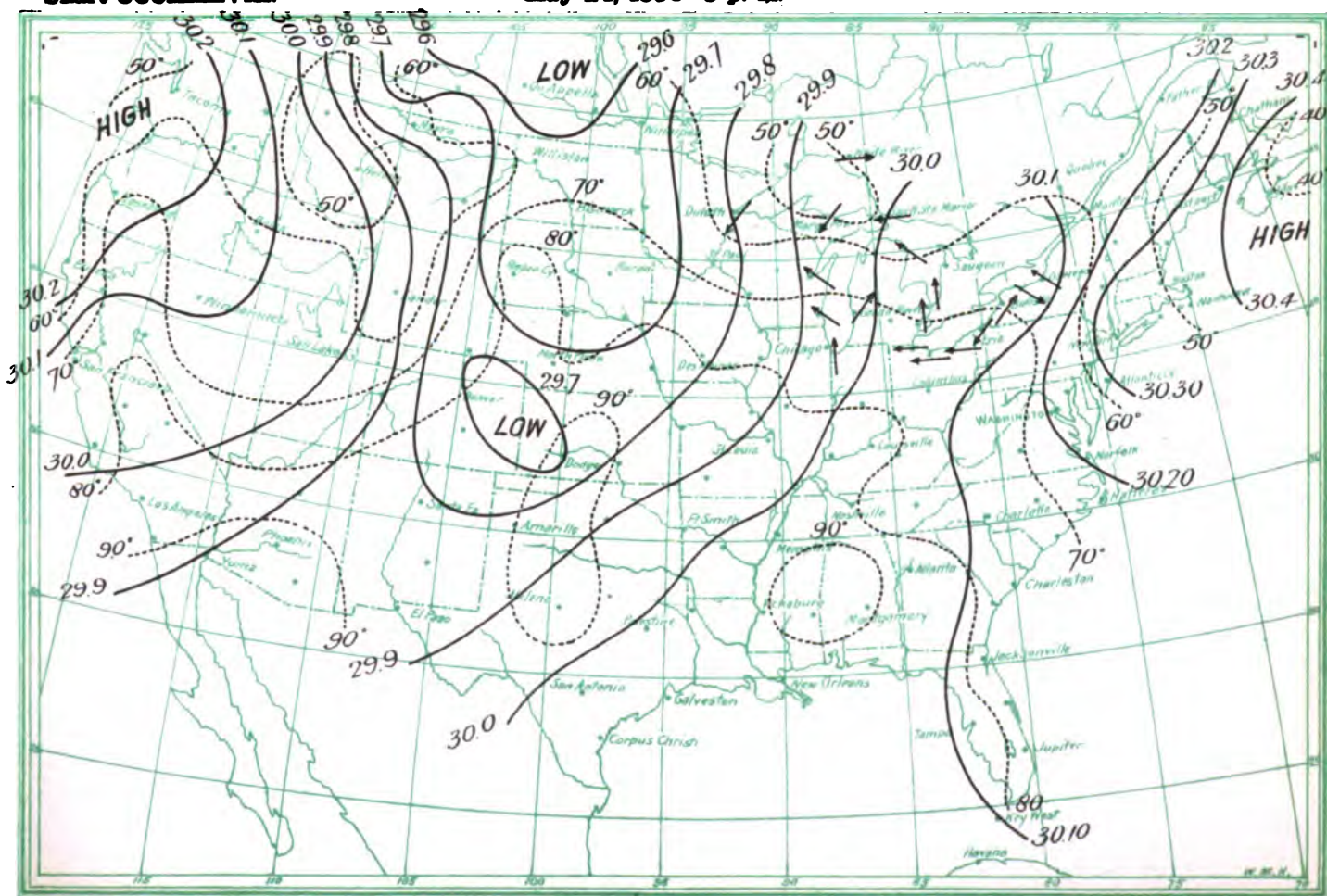


Chart CCCCXXIX.

May 25, 1896—8 a. m.

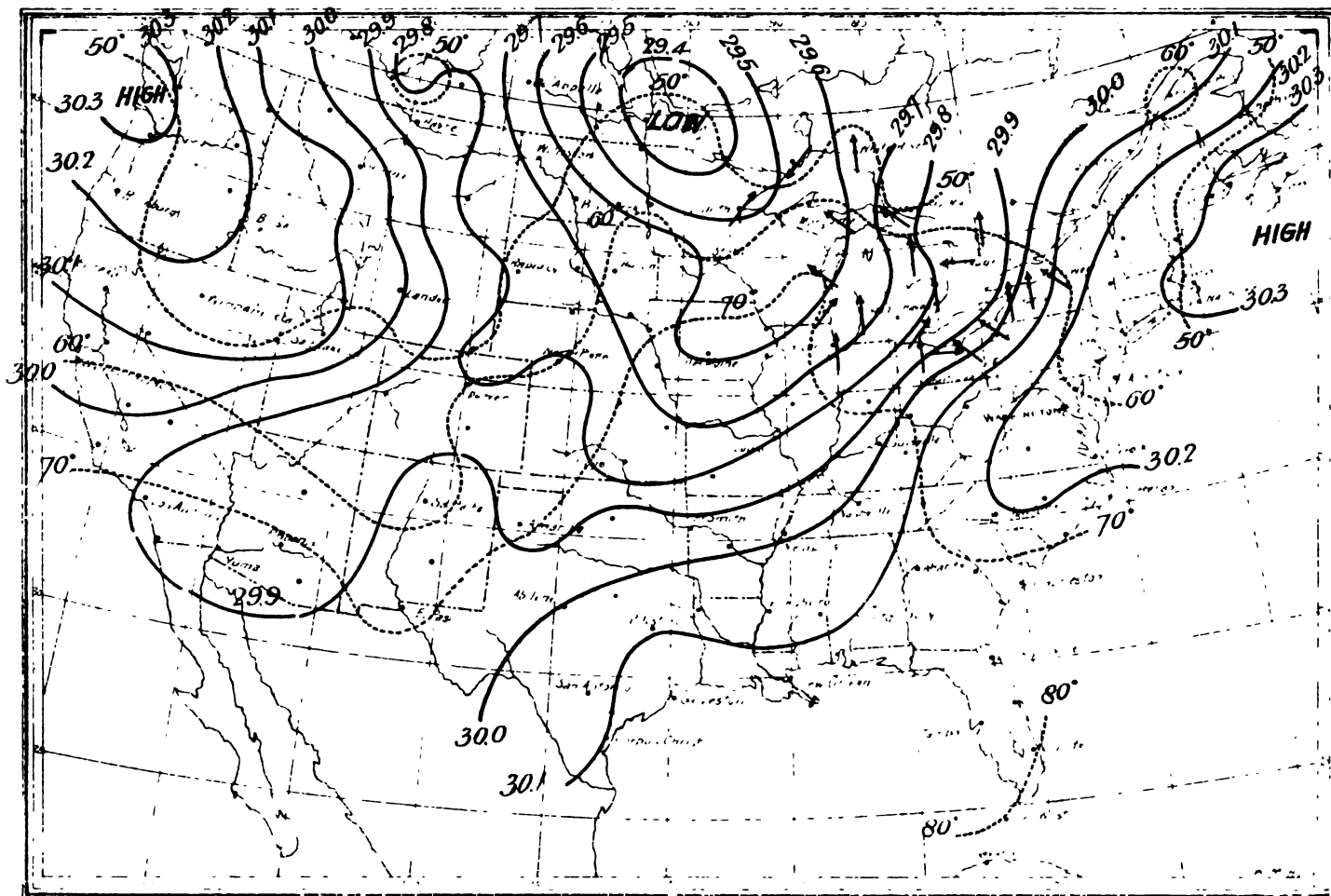


Chart CCCCXL.

May 25, 1896—8 p. m.

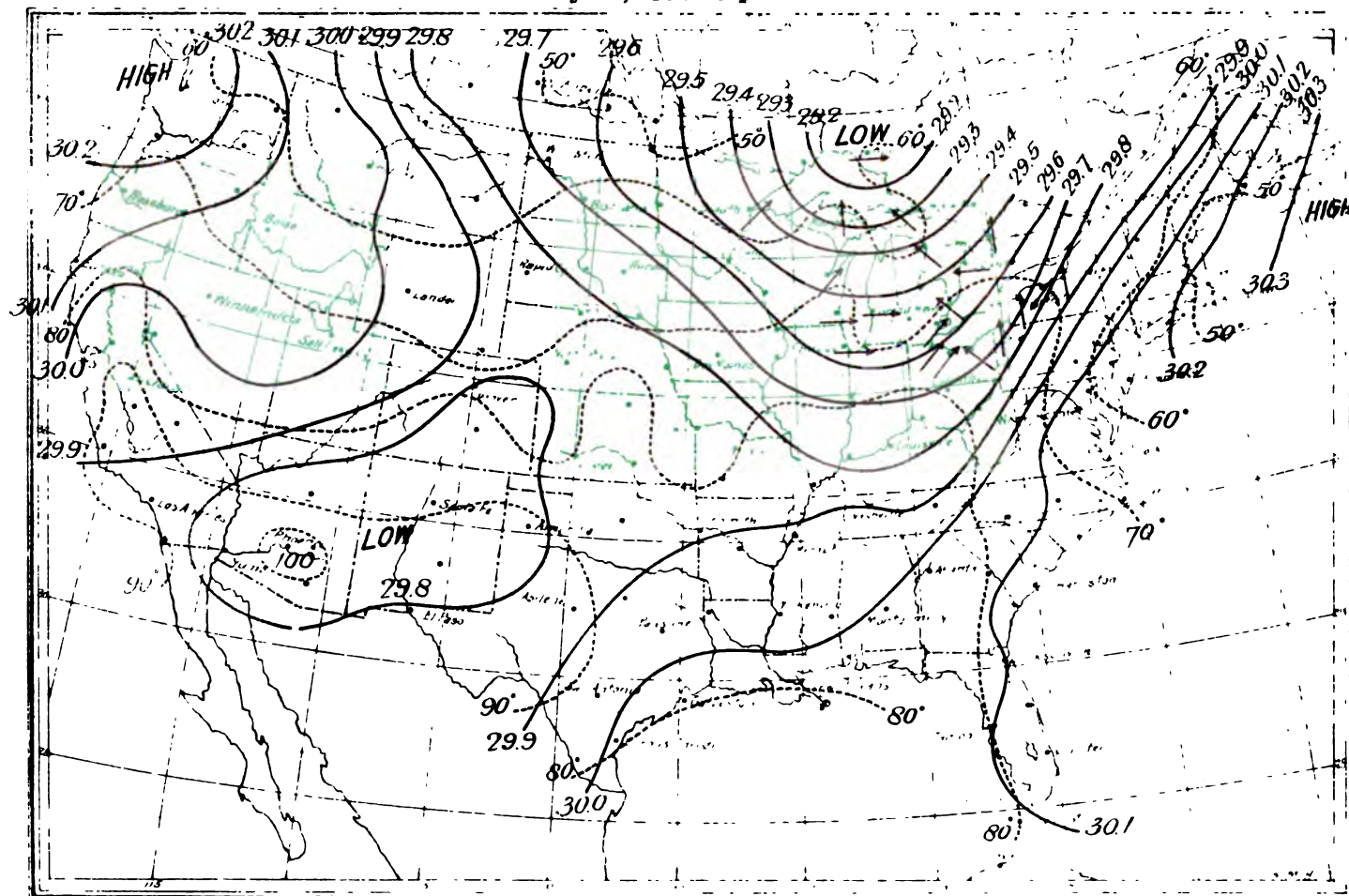


Chart OOOXLI

May 26, 1896—8 a. m.

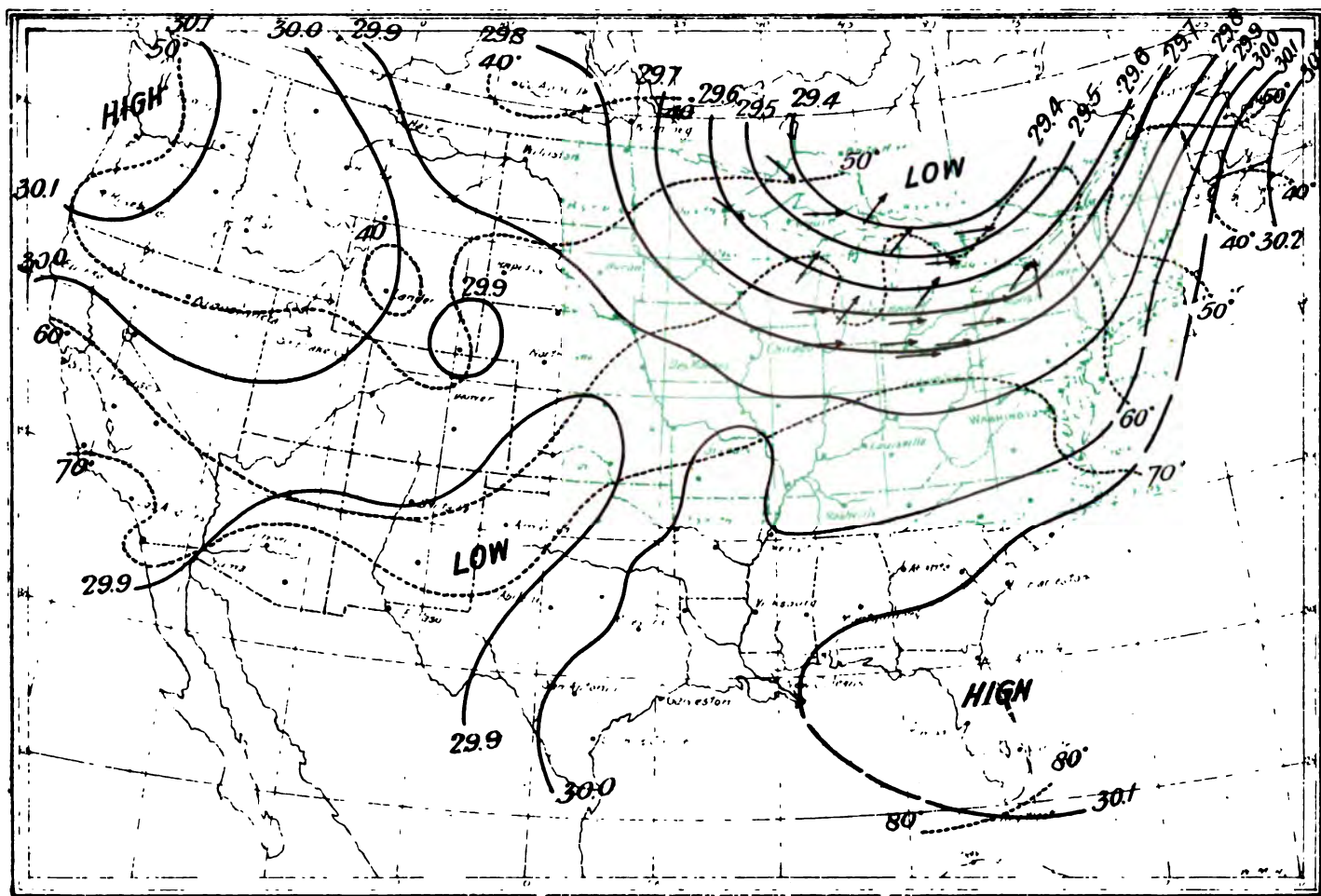


Chart OOOXLII

May 26, 1896—8 p. m.

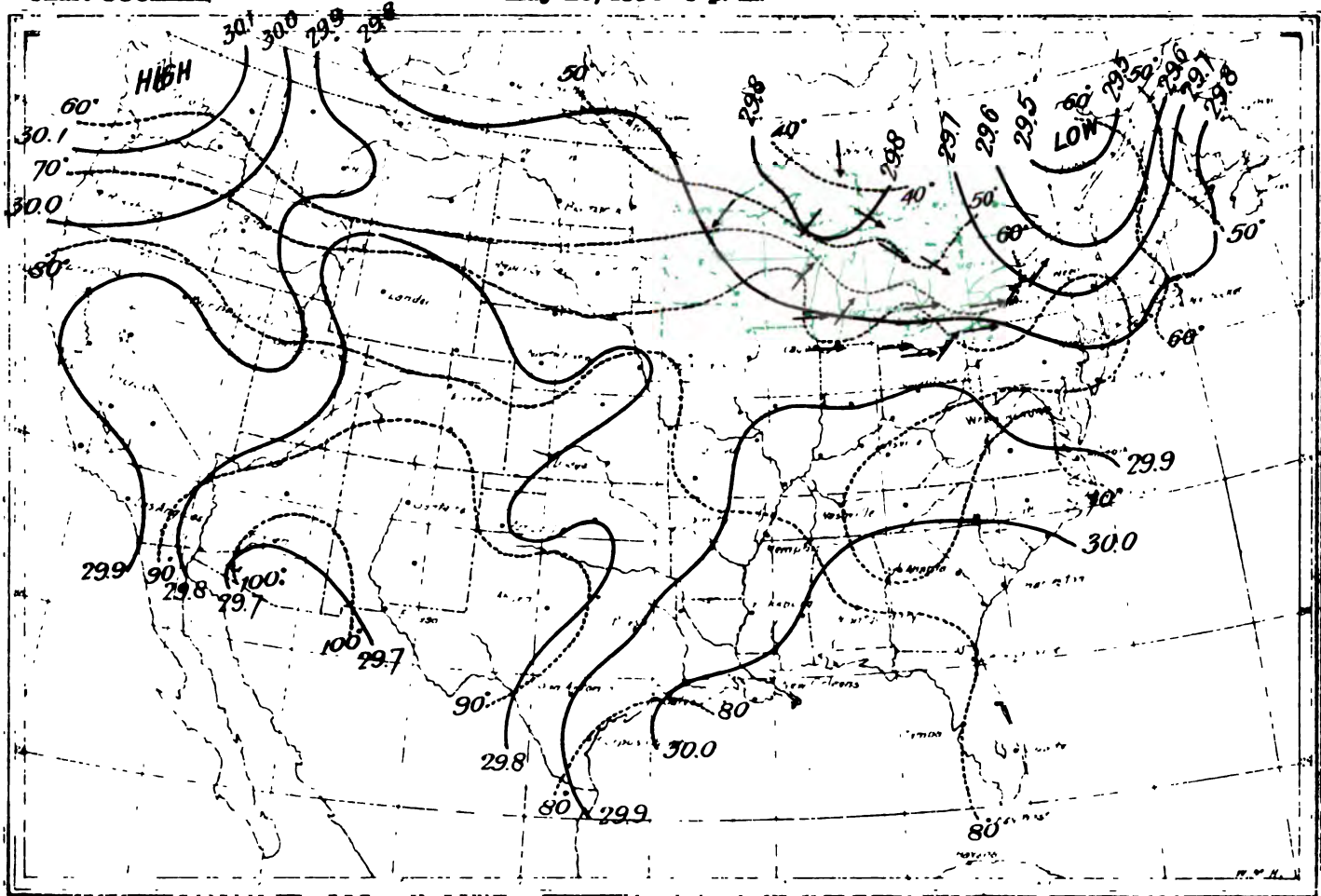


Chart CCCCXLIII.

May 27, 1896—8 a. m.

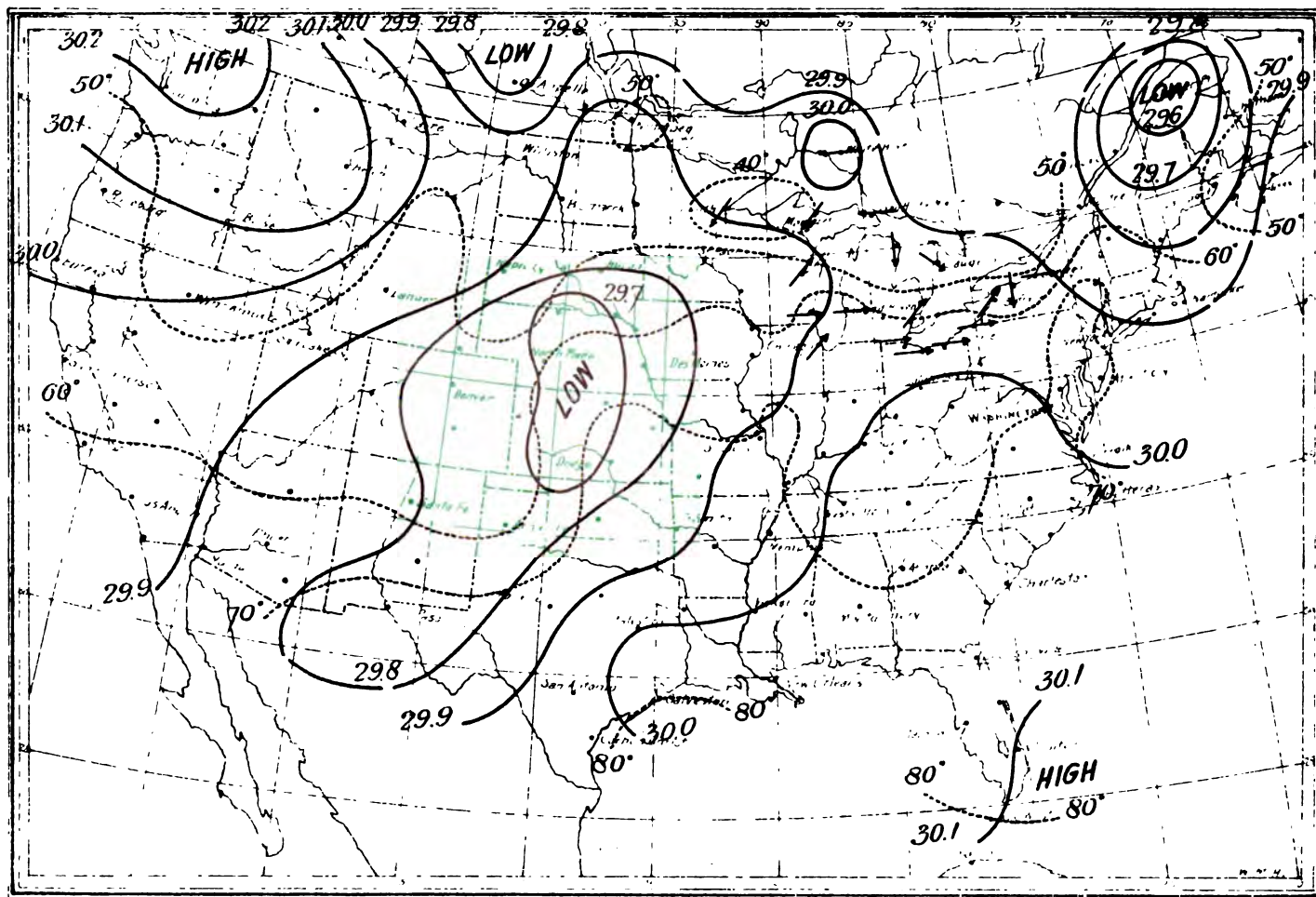


Chart CCCCXLIV.

May 27, 1896—8 p. m.

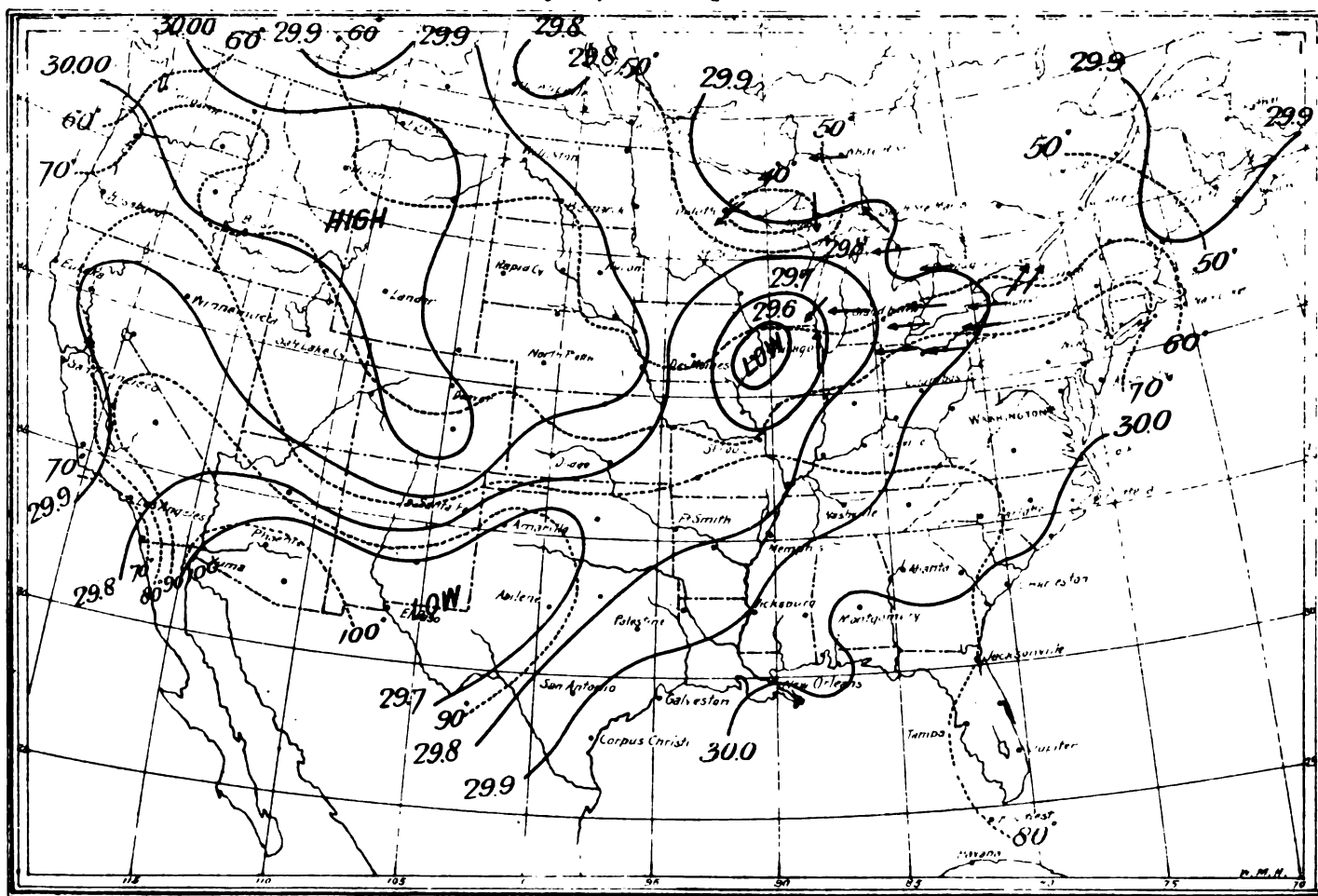


Chart CCOXLV.

May 17, 1898—3 p. m.

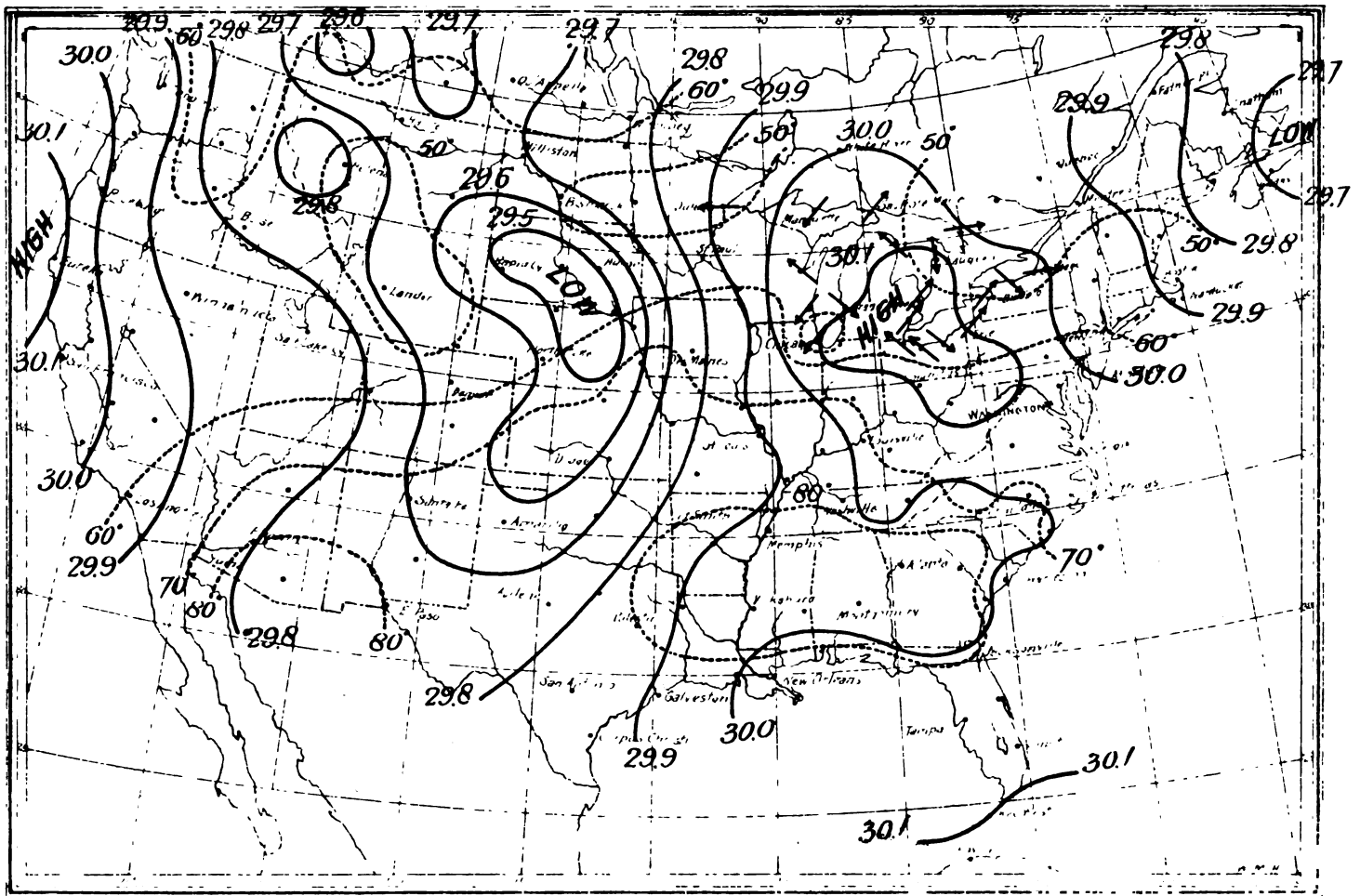


Chart CCOXLVI.

May 18, 1898—8 a. m.

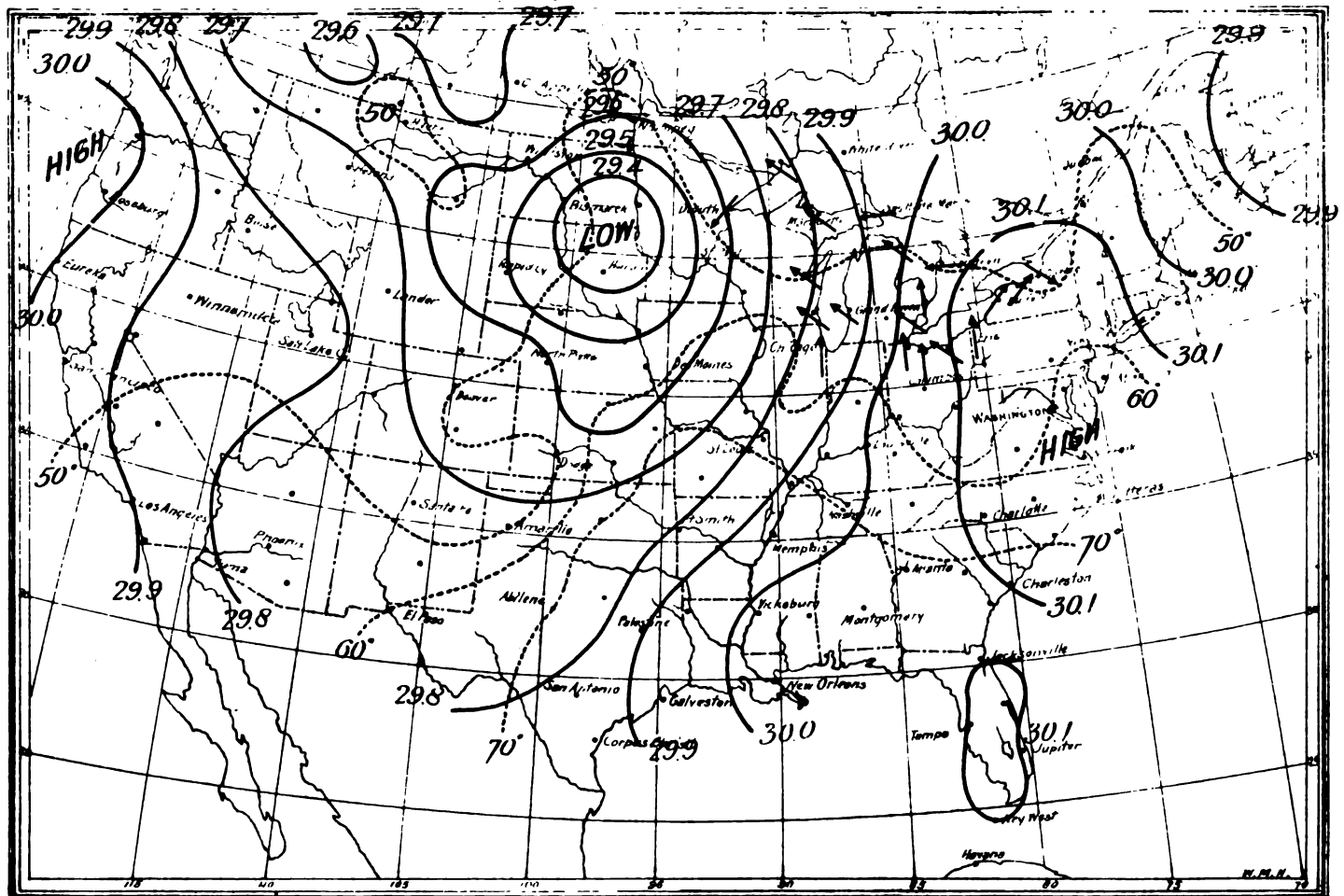


Chart CCOXLVII.

May 18, 1898—8 p. m.

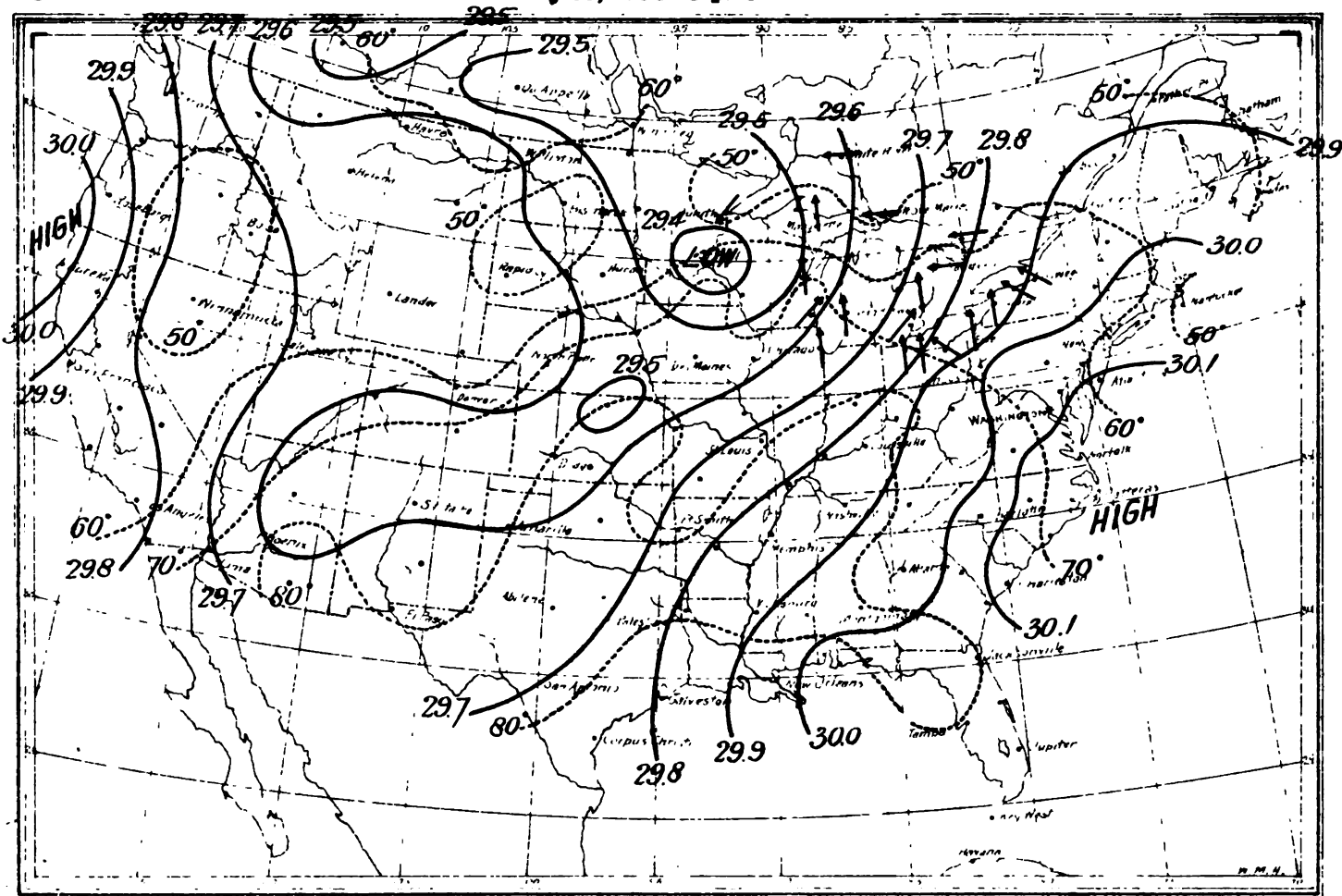


Chart CCOXLVIII.

May 19, 1898—8 a. m.

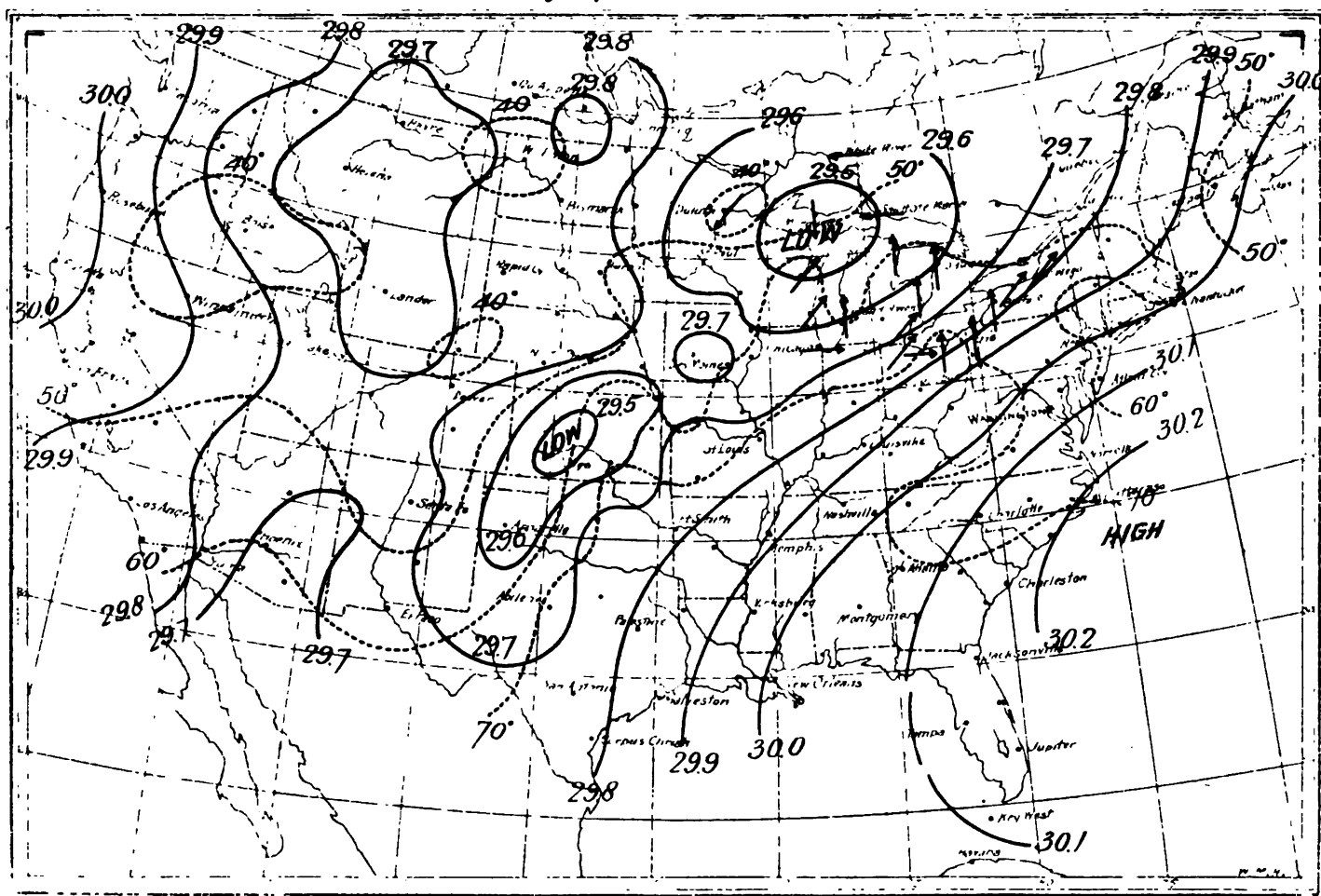


Chart CCOXLIX.

June 16, 1876—7:35 a. m.

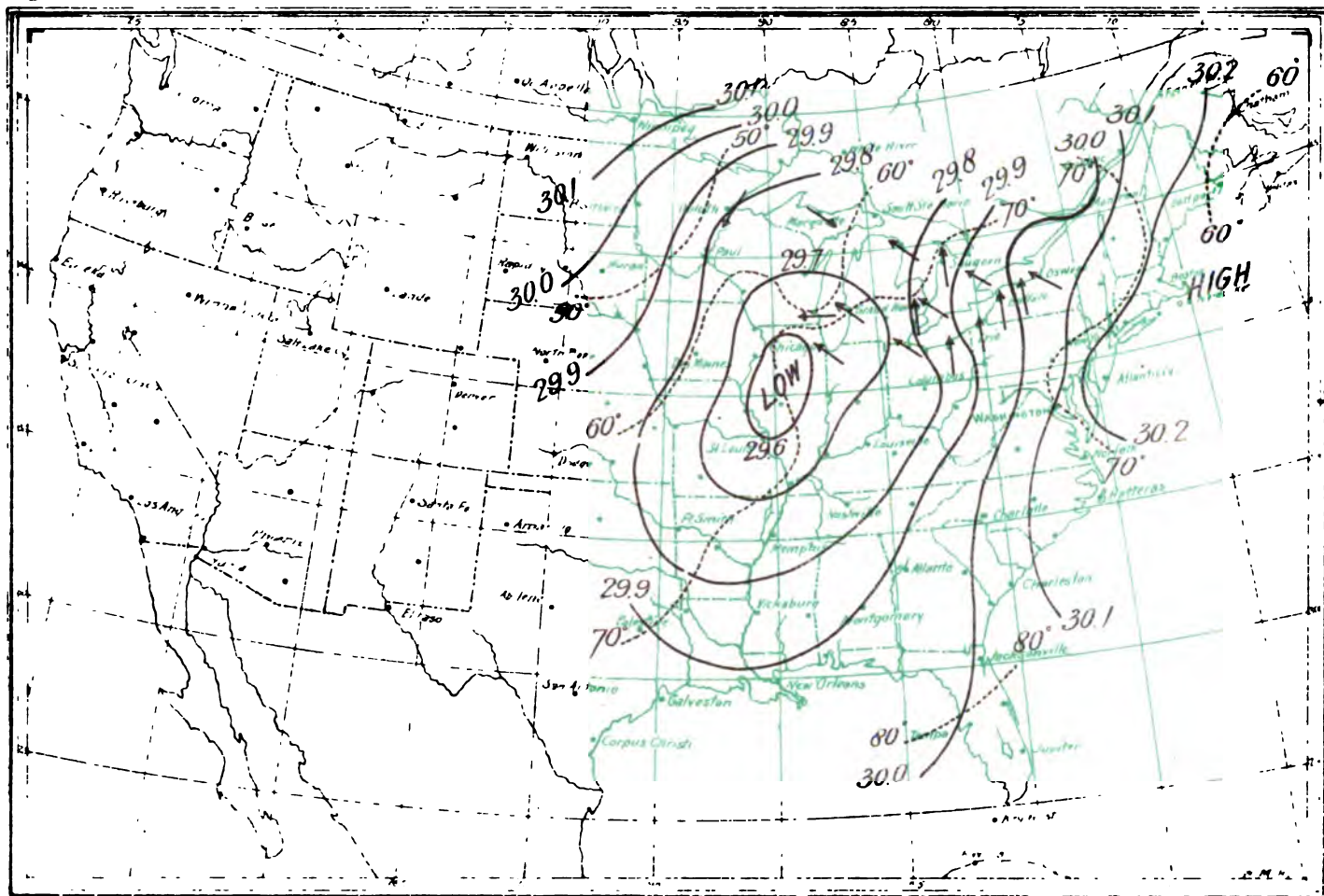
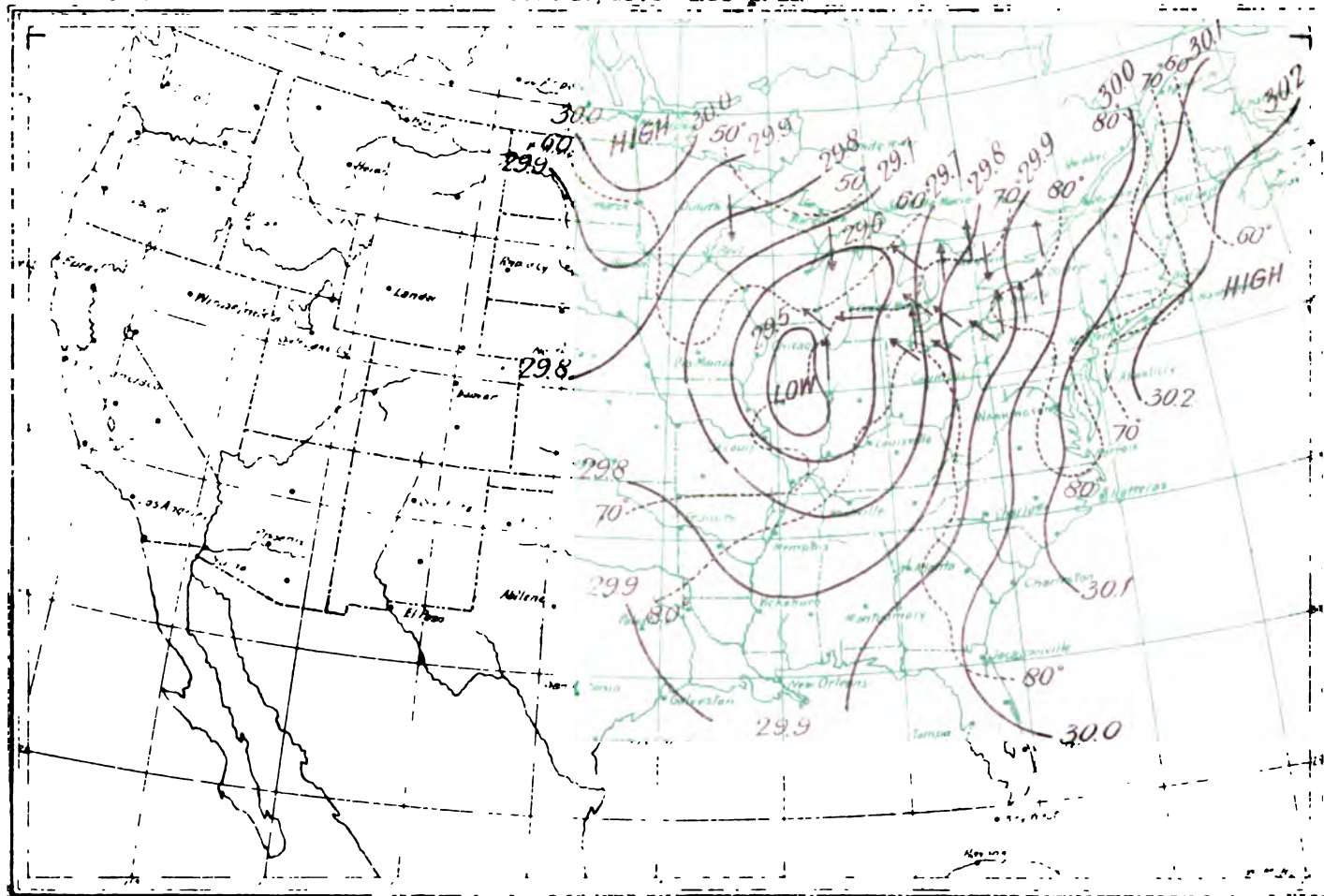


Chart CCOOL.

June 16, 1876—4:35 p. m.



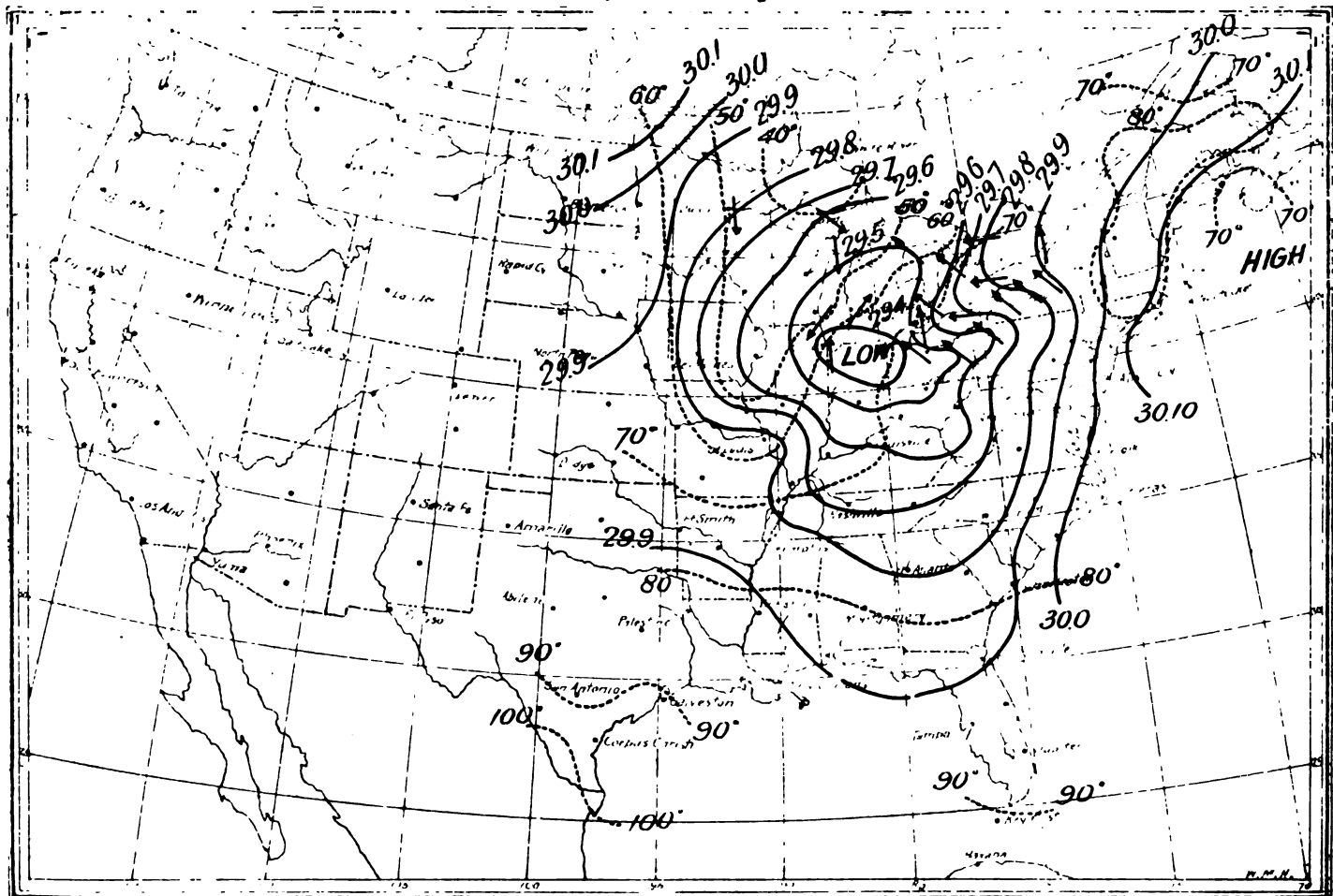
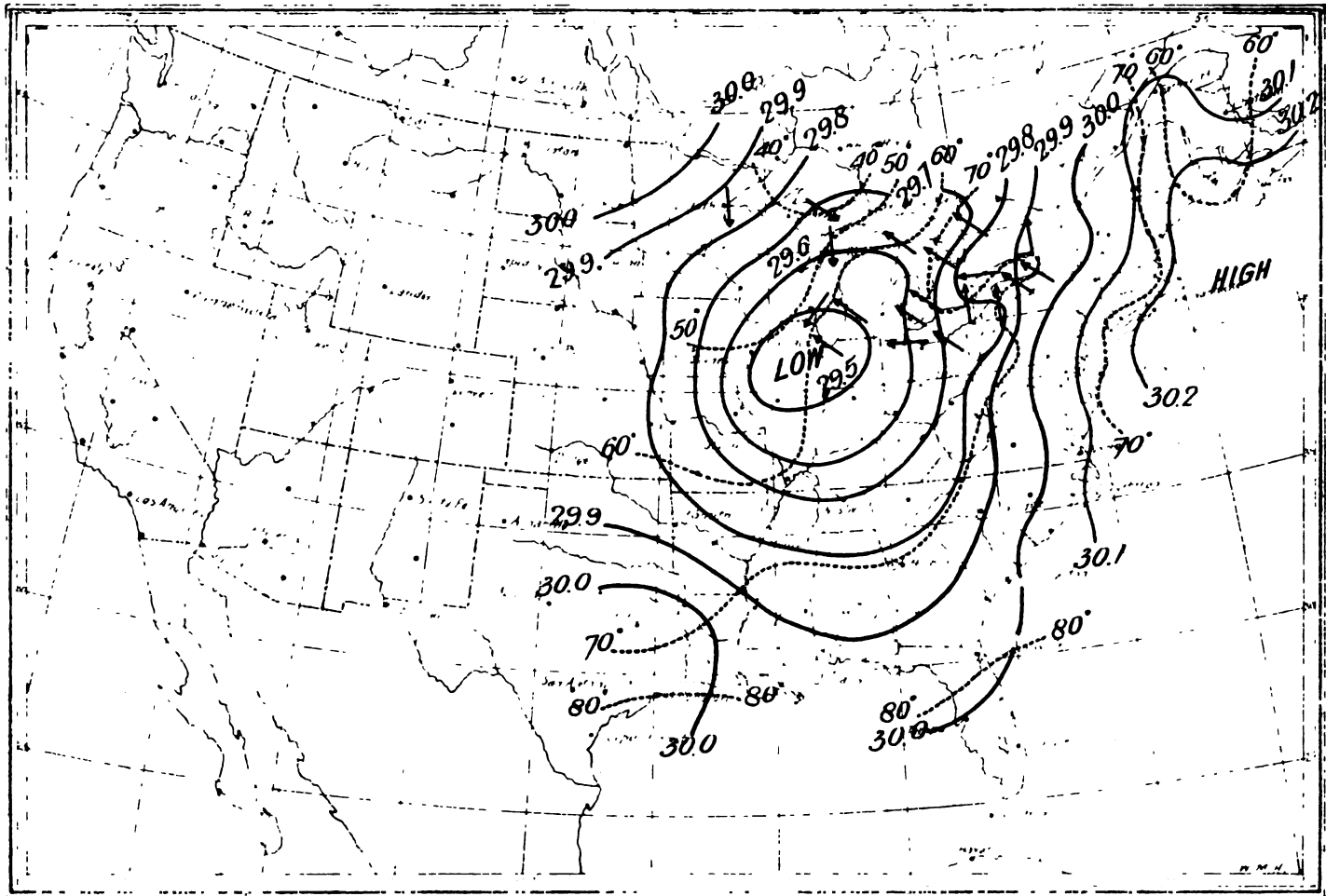


Chart COOLIII.

June 8, 1877—7:35 a. m.

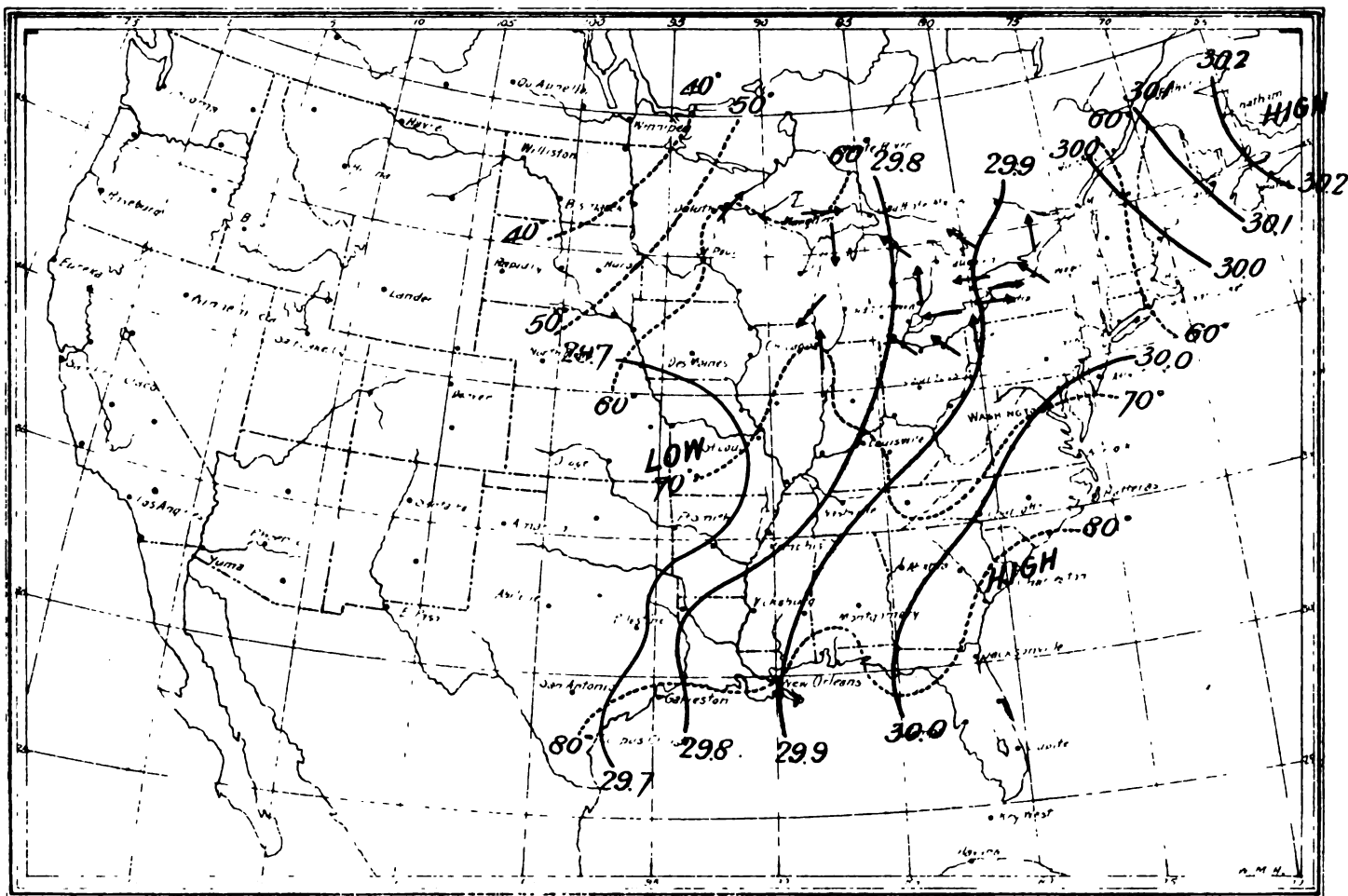


Chart COOLIV.

June 8, 1877—4:35 p. m.

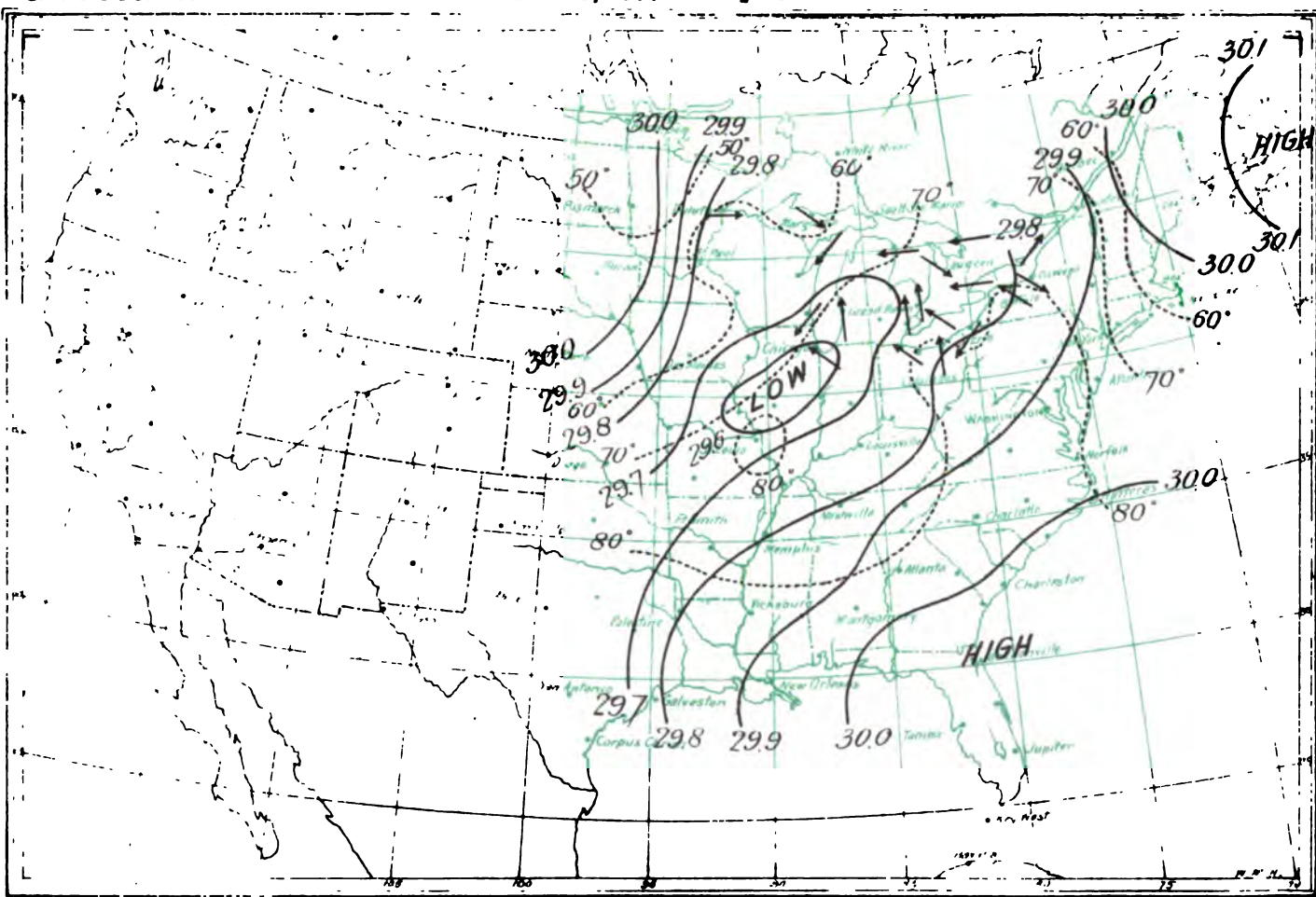


Chart COOLV.

June 9, 1877—7:35 a. m.

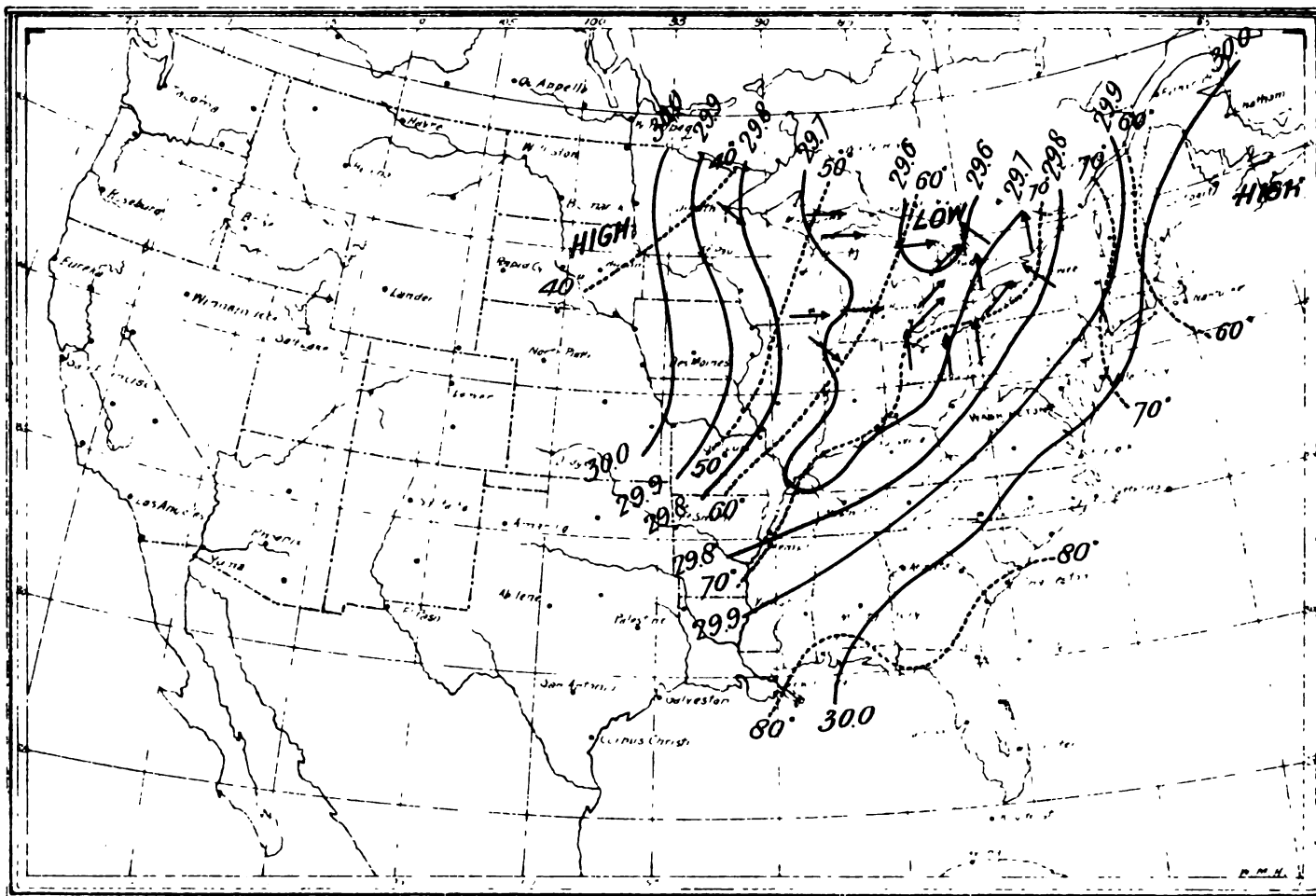


Chart COOLVI.

June 9, 1877—4:35 p. m.

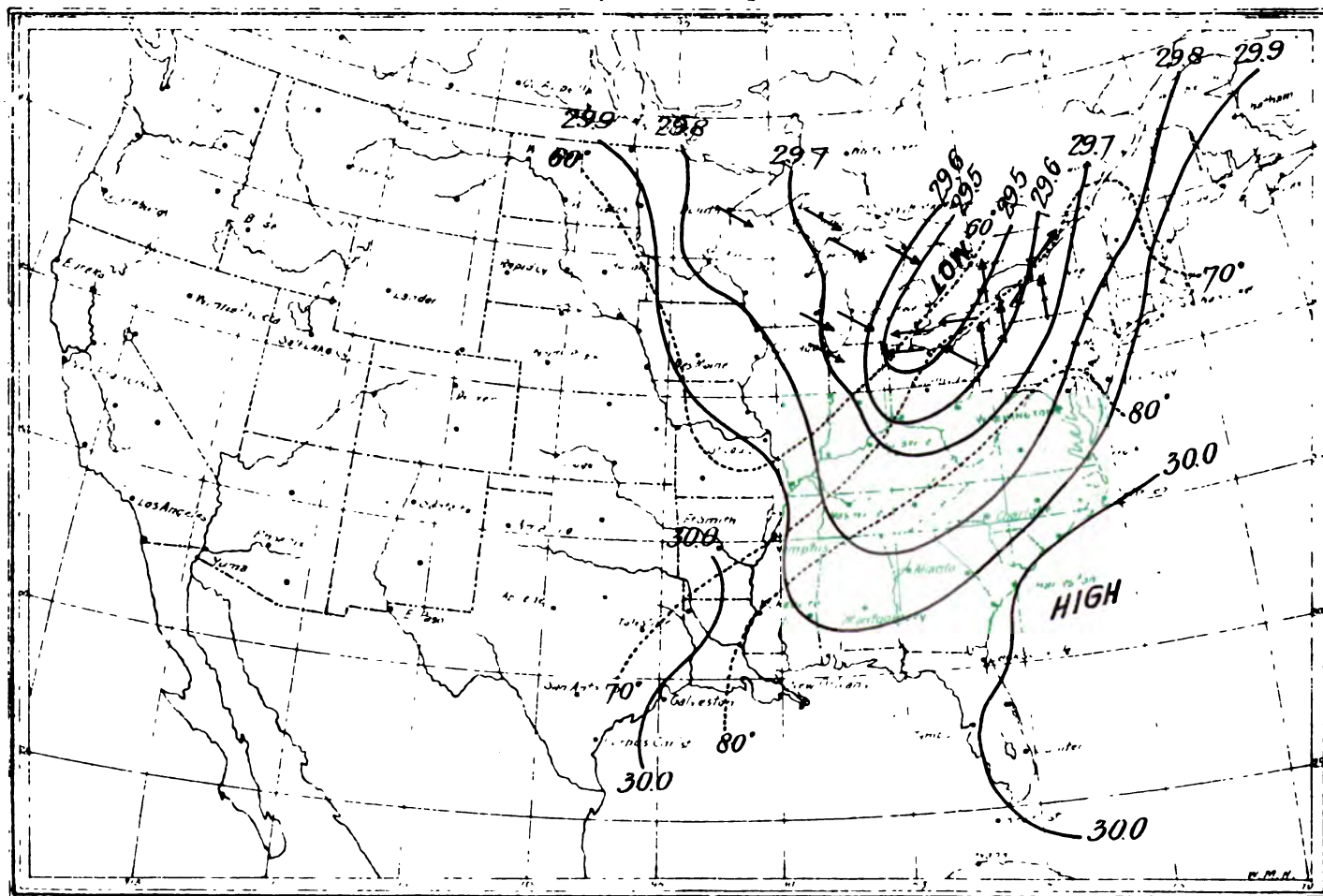


Chart COOLVIL

June 19, 1878—7:35 a. m.

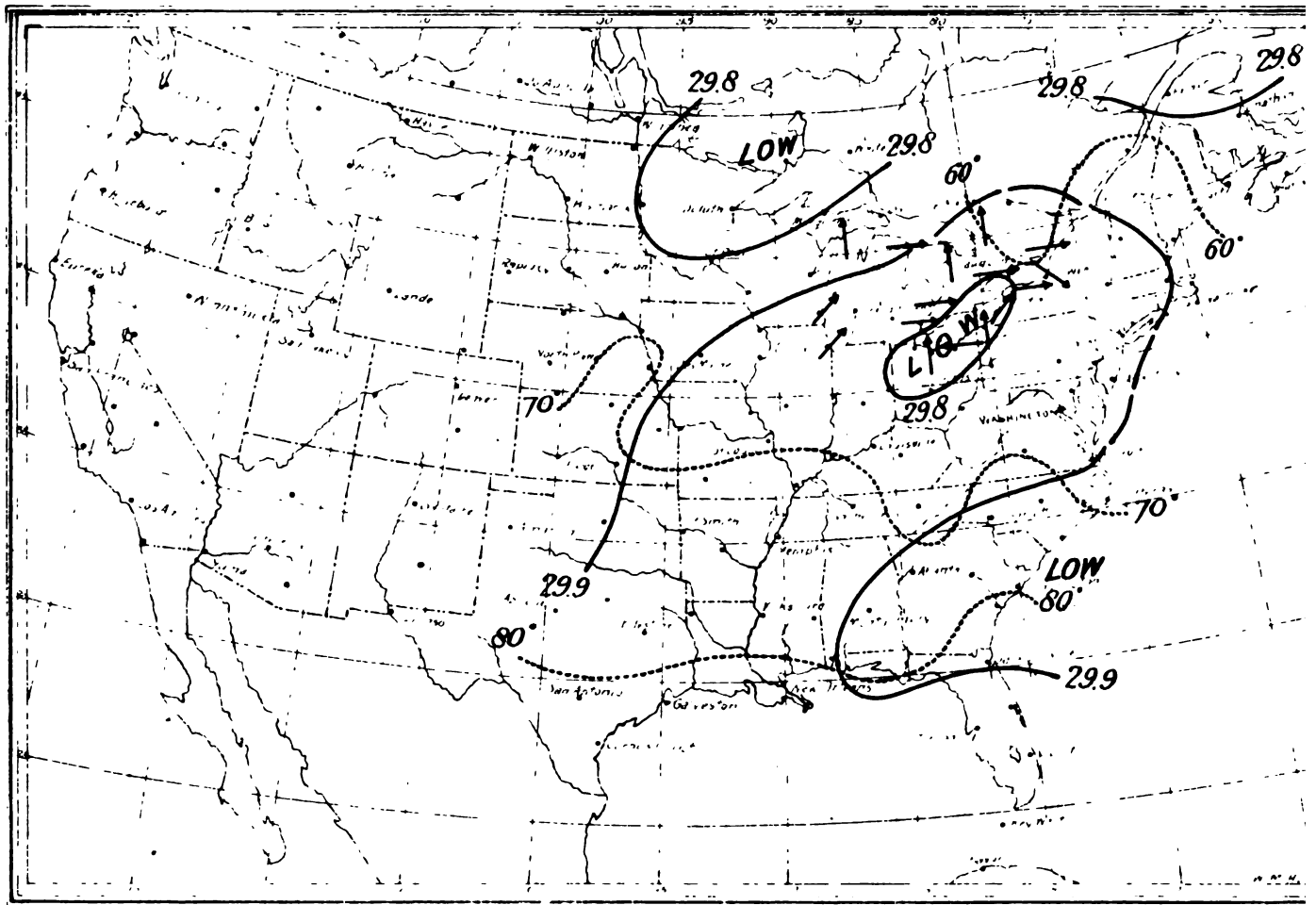


Chart COOLVIII

June 19, 1878—4:35 p. m.

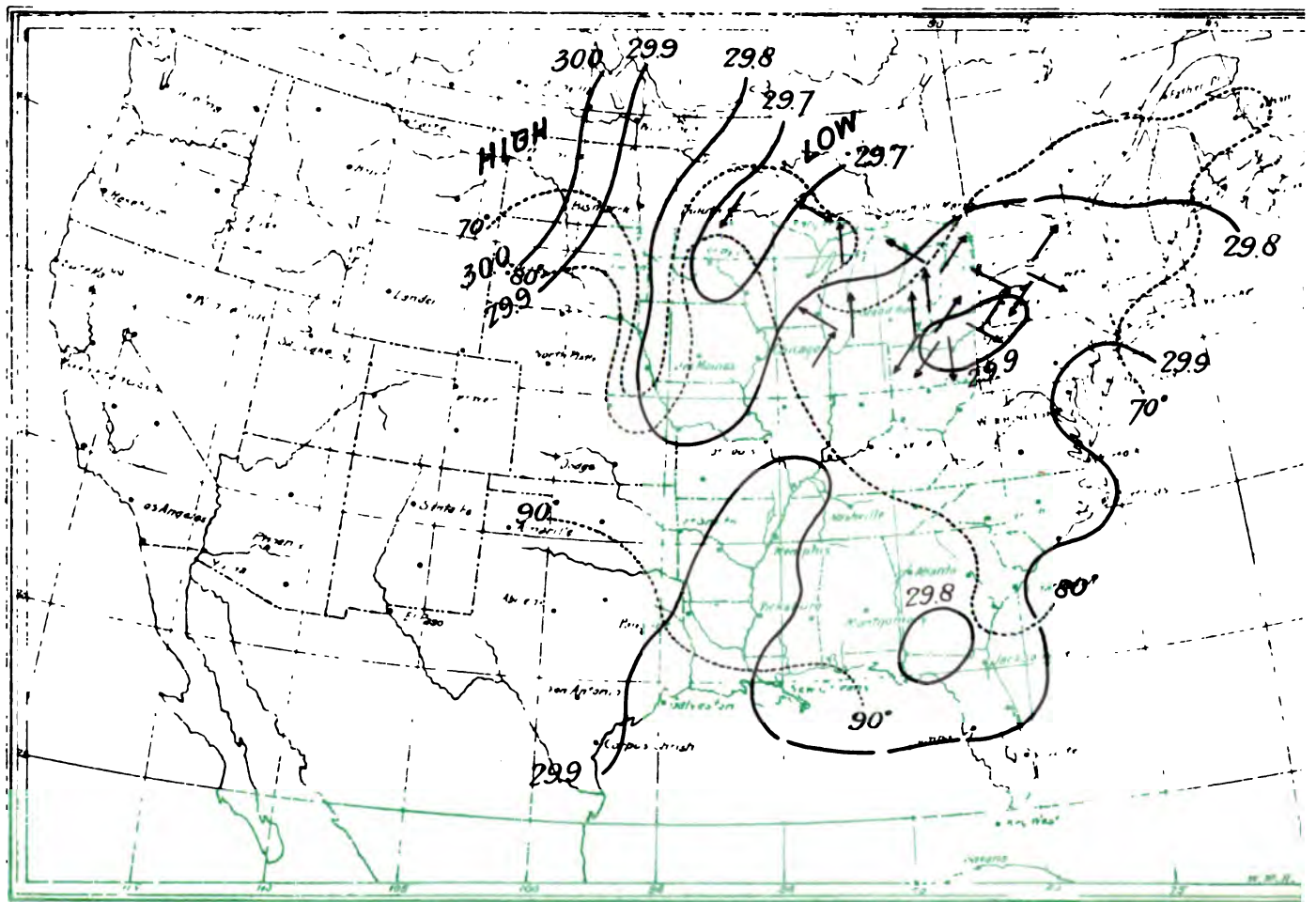


Chart 0001X.

June 20, 1878—7:35 a. m.

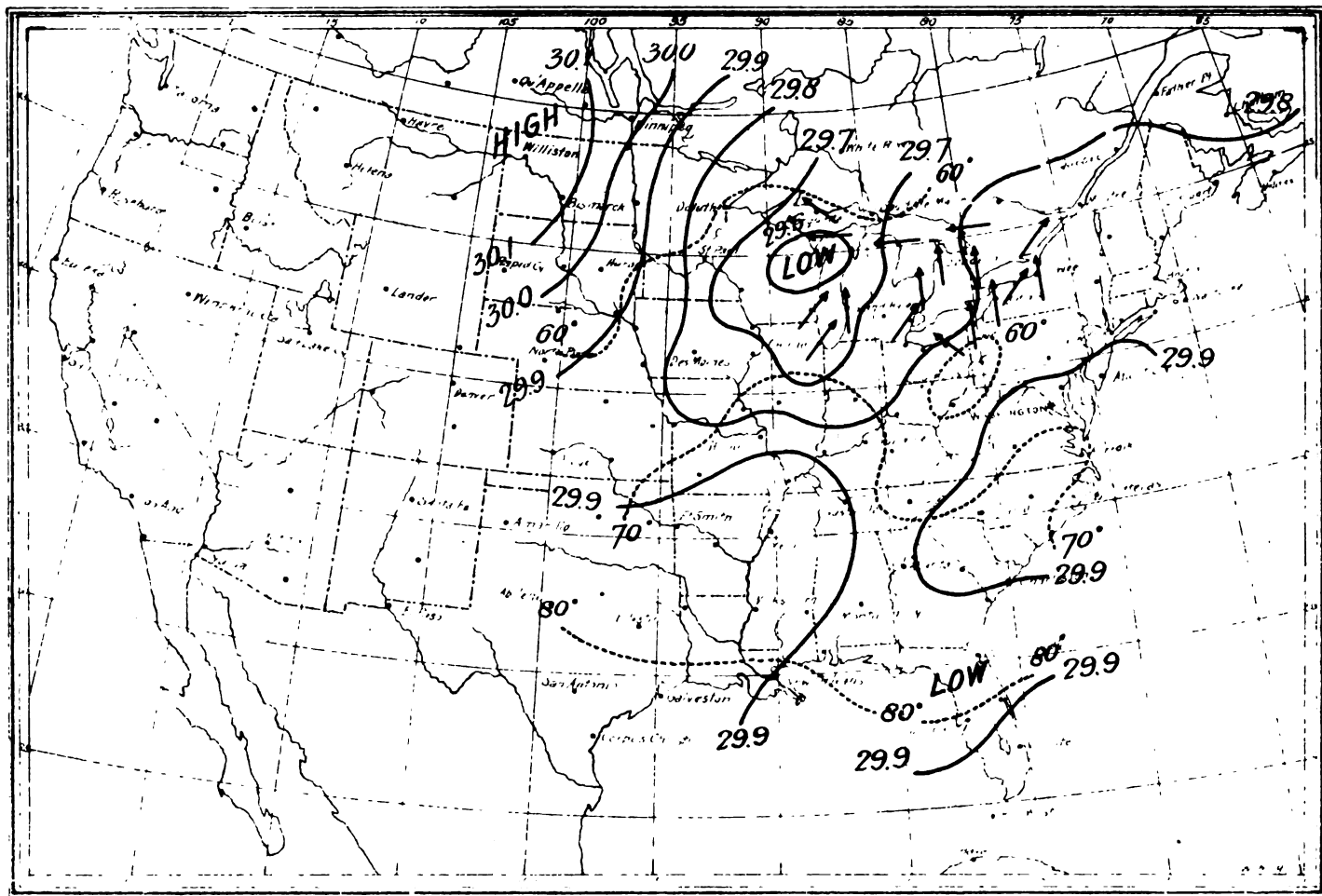


Chart 0001X.

June 20, 1878—4:35 p. m.

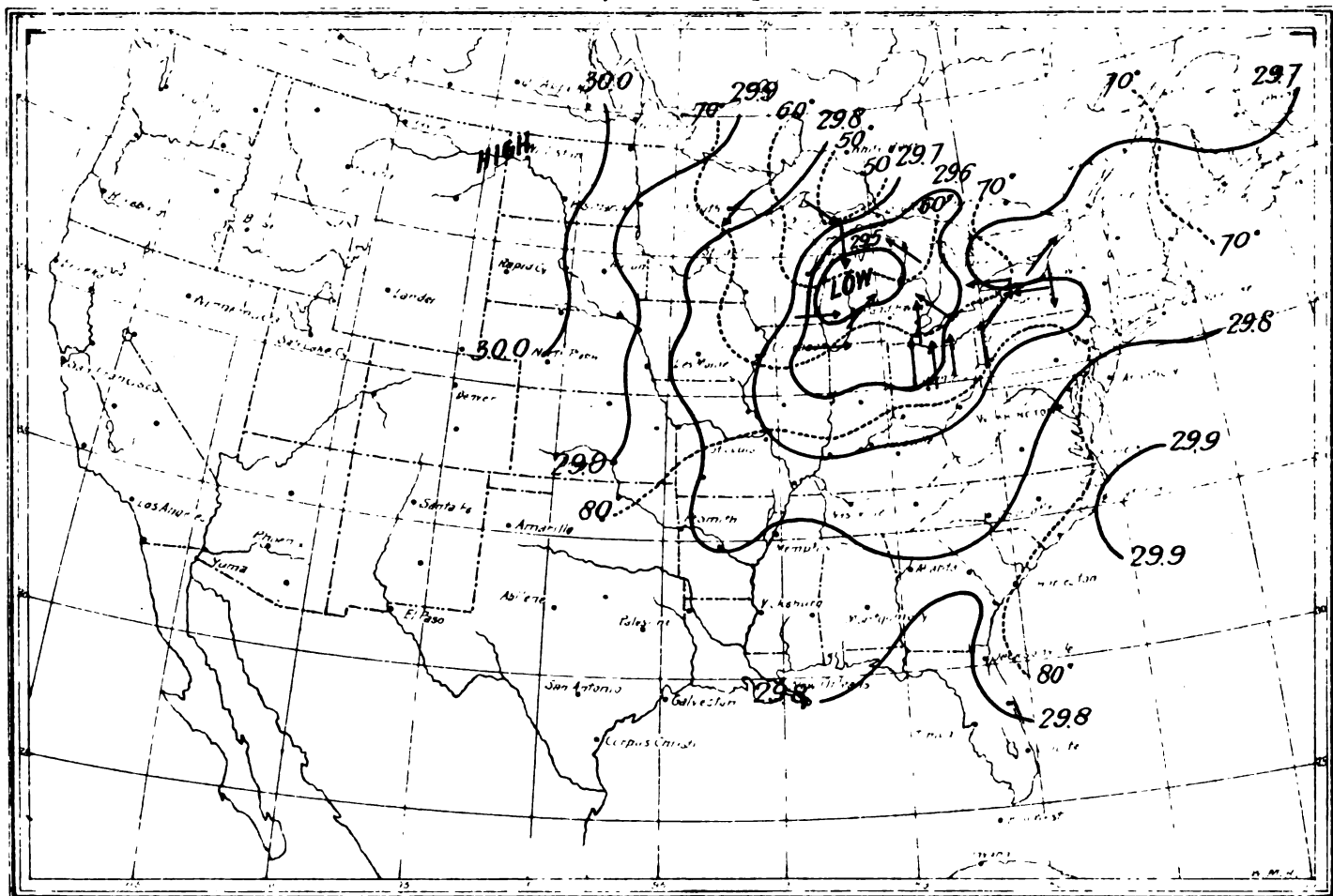


Chart COOLXI.

June 5, 1890—7 a. m.

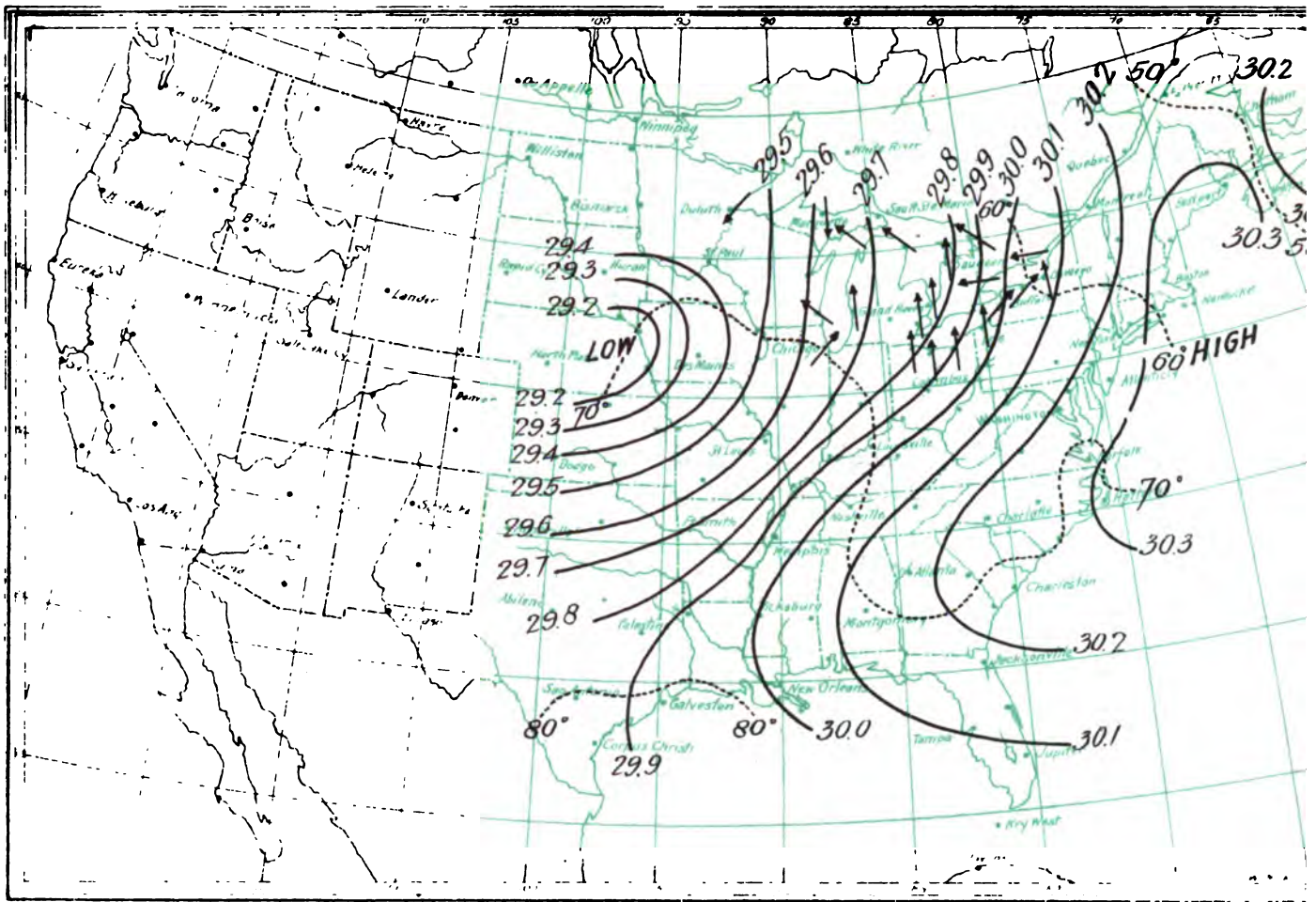


Chart COOLXII.

June 5, 1890—8 p. m.

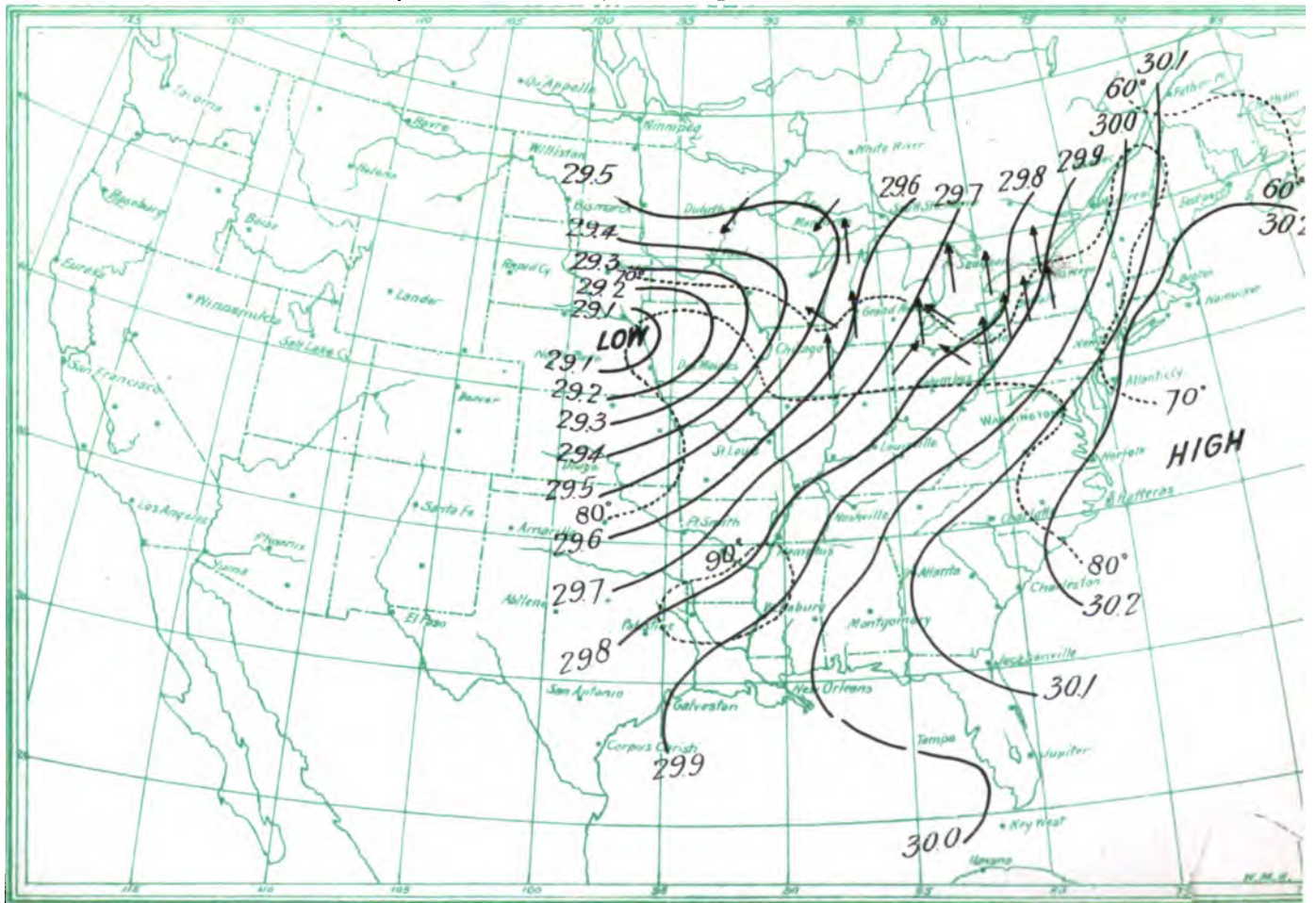


Chart COOLXIII.

June 6, 1880—7 a. m.

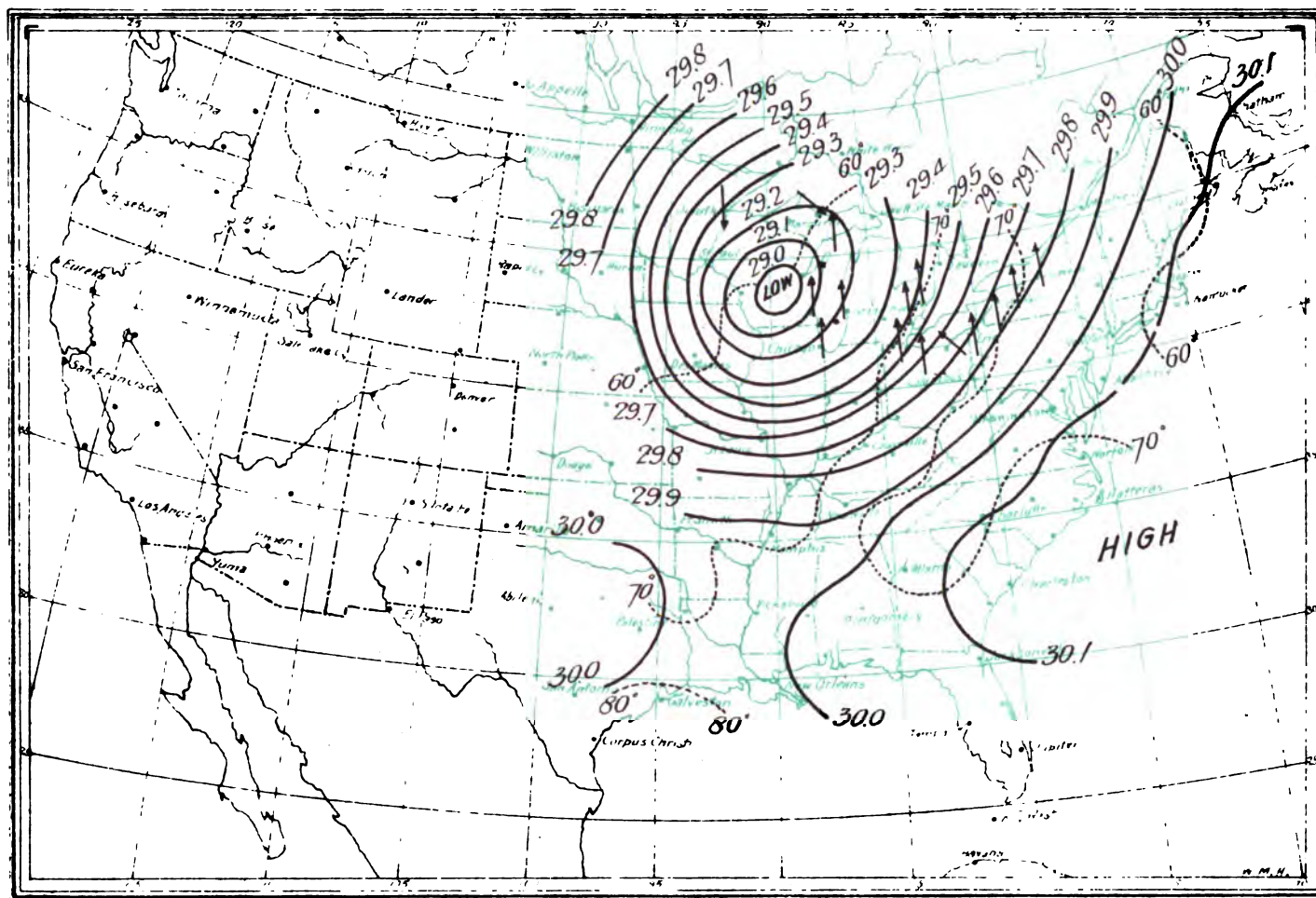


Chart COOLXIV.

June 6, 1880—3 p. m.

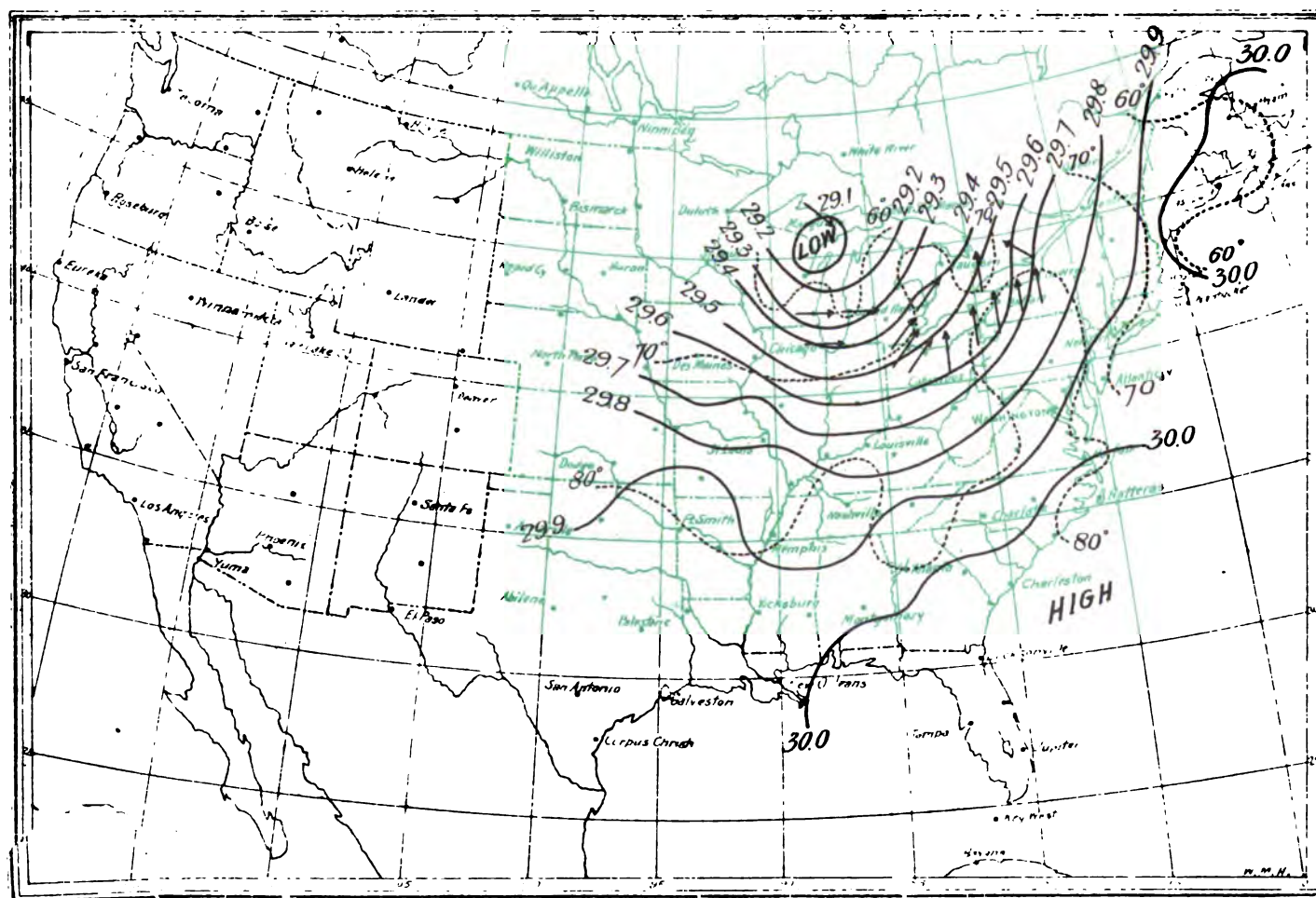


Chart 000LXV.

June 2, 1882-7 a. m.

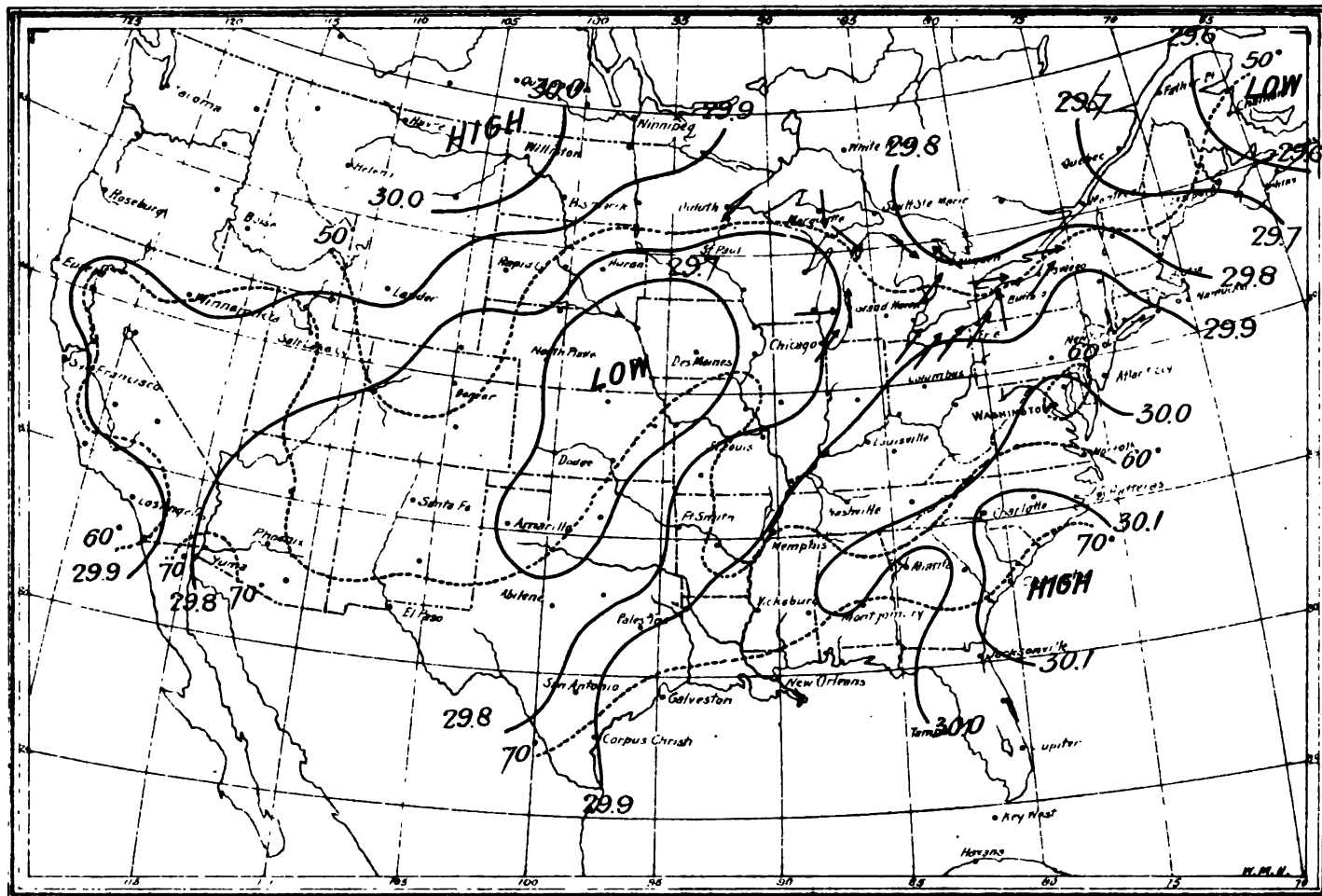
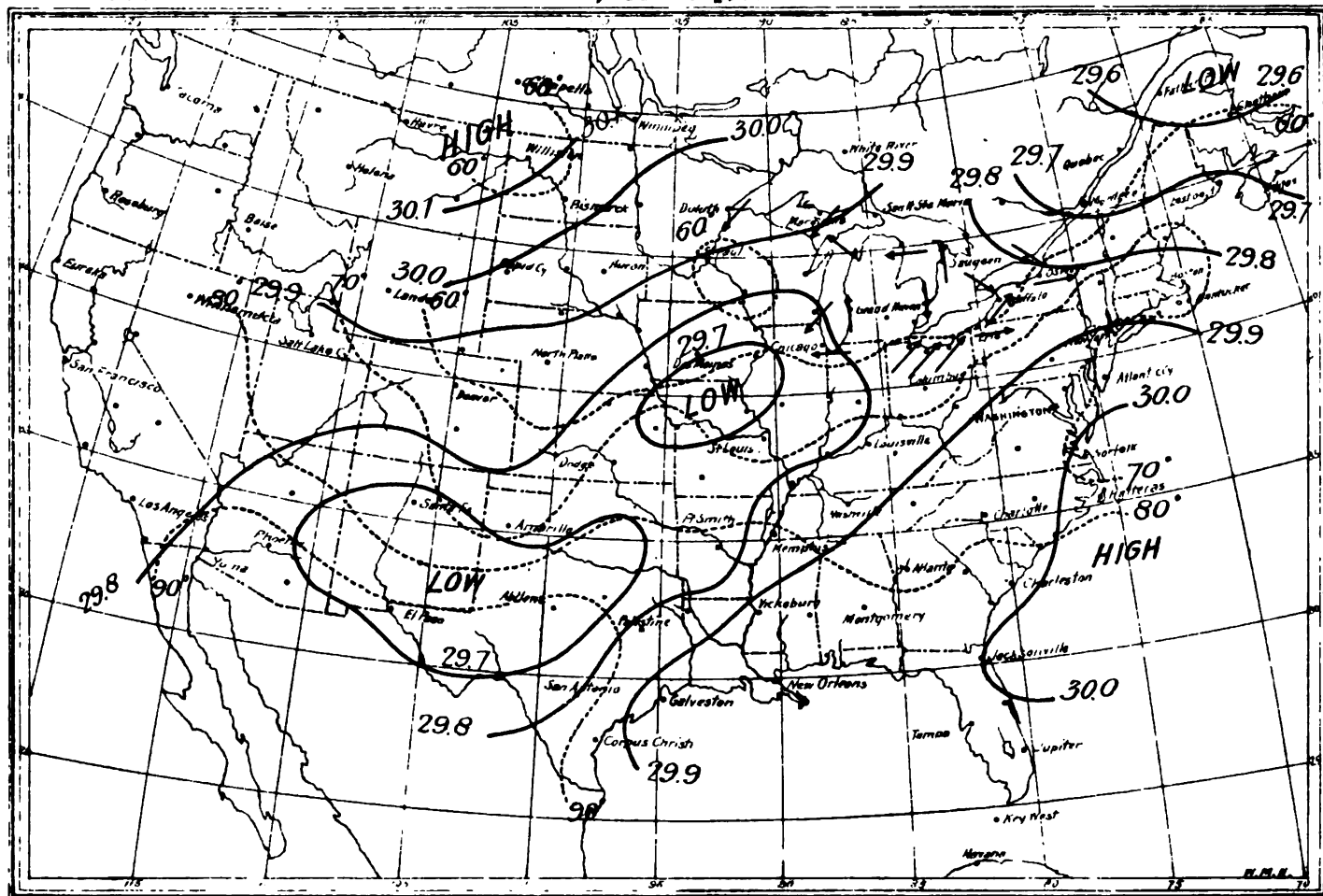
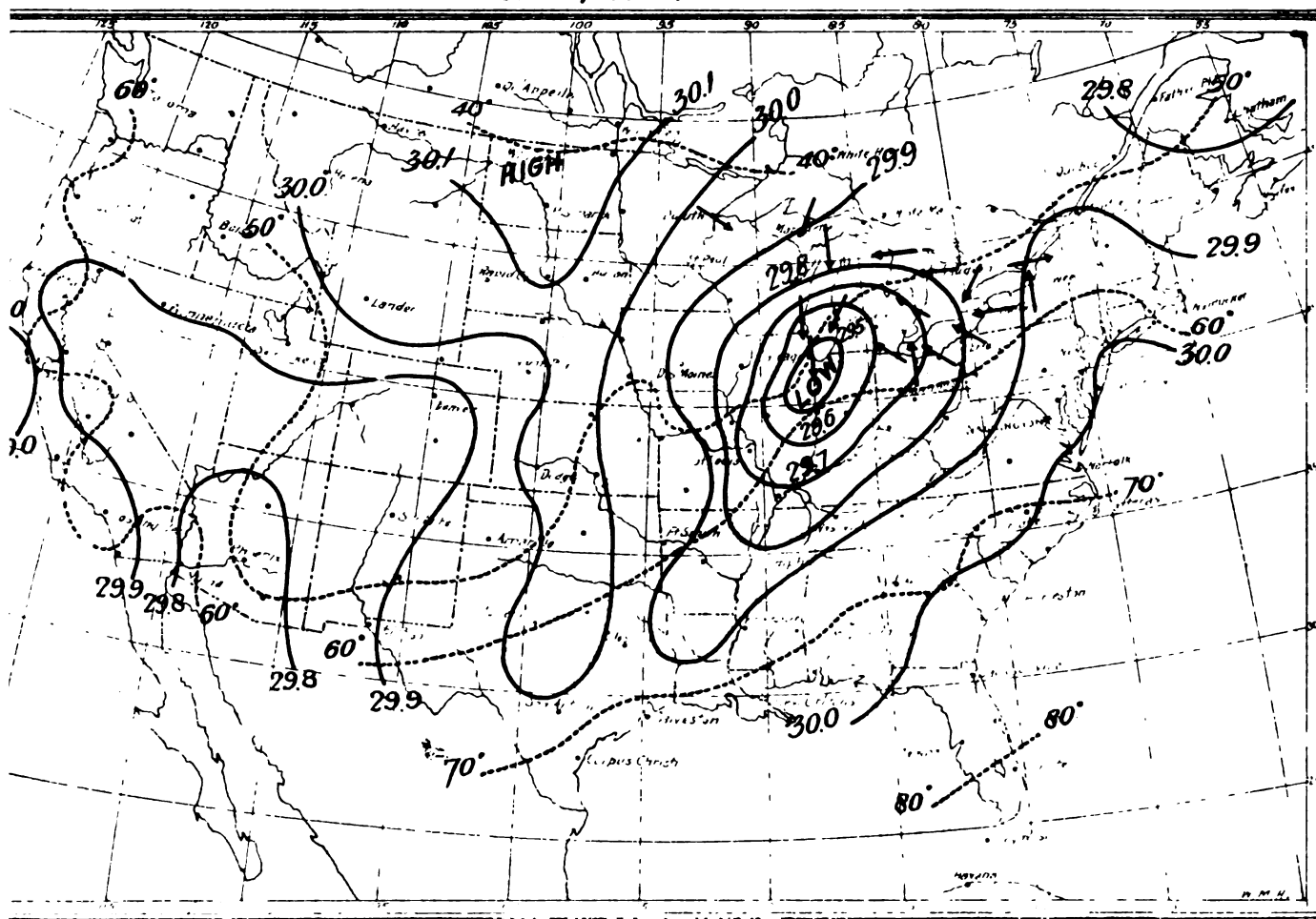


Chart 000LXVI.

June 2, 1882-3 p. m.



June 8, 1882—7 a. m.



June 8, 1882—3 p. m.

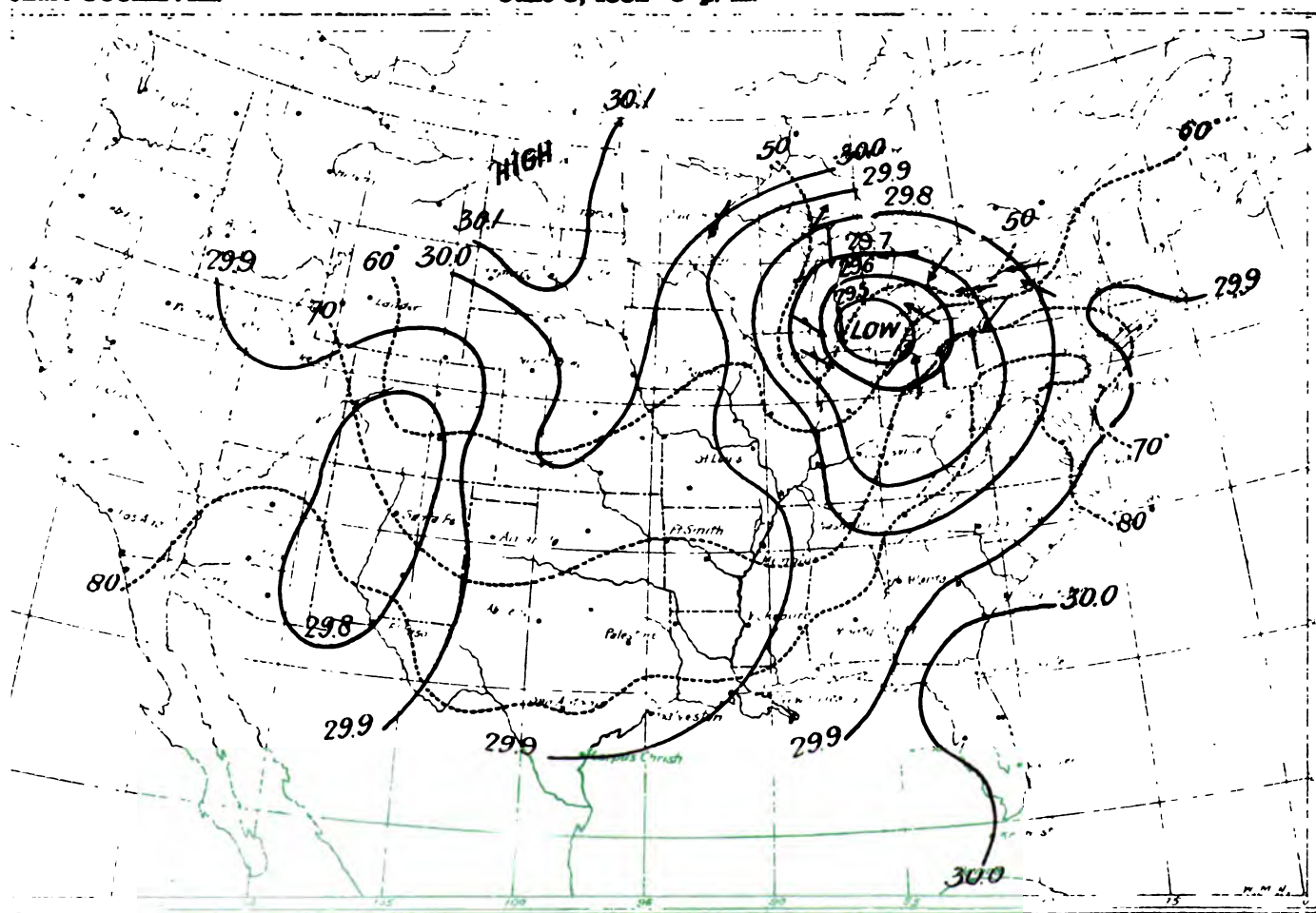


Chart COOLXIX.

June 17, 1882—7 a. m.

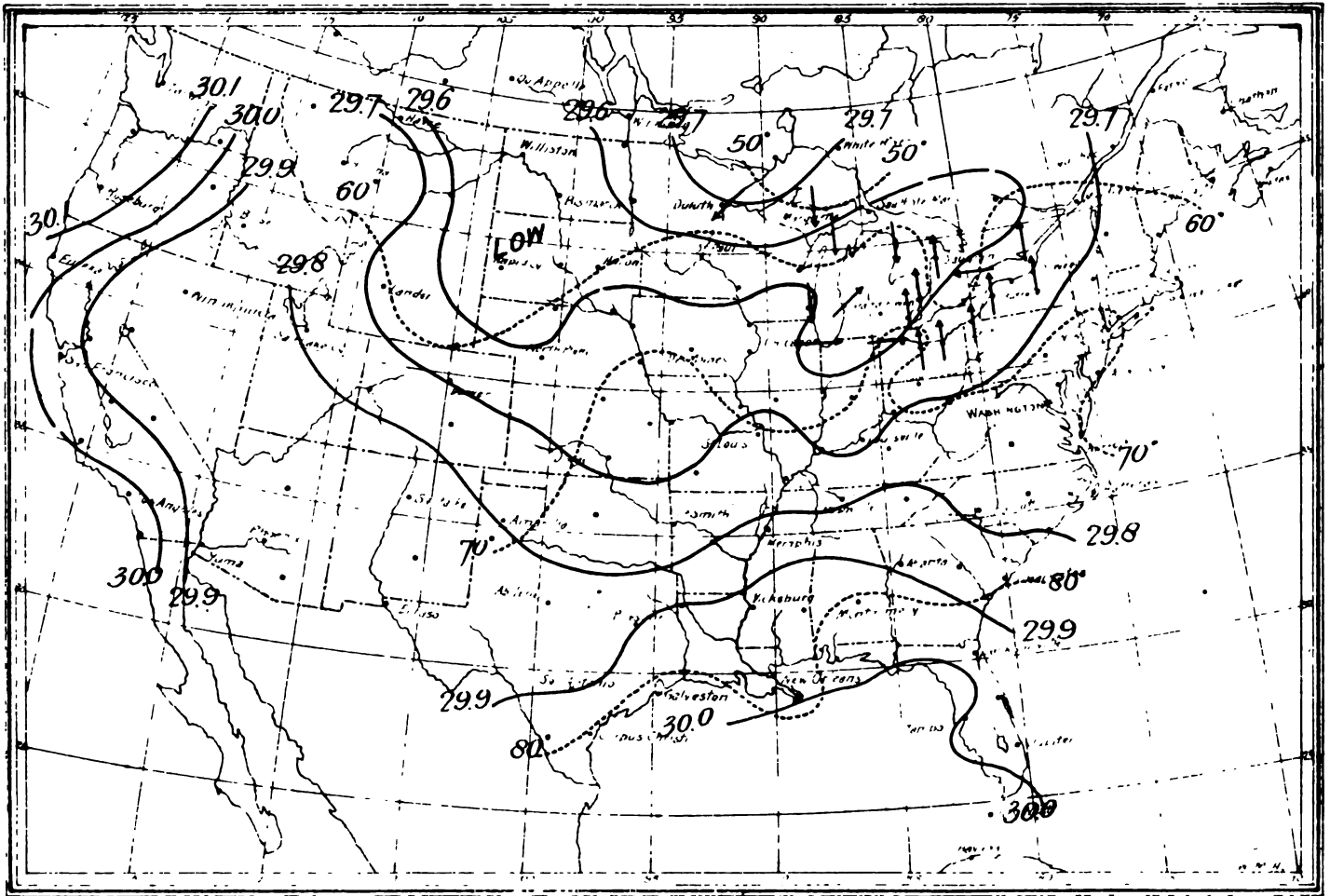


Chart COOLXX.

June 17, 1882—3 p. m.

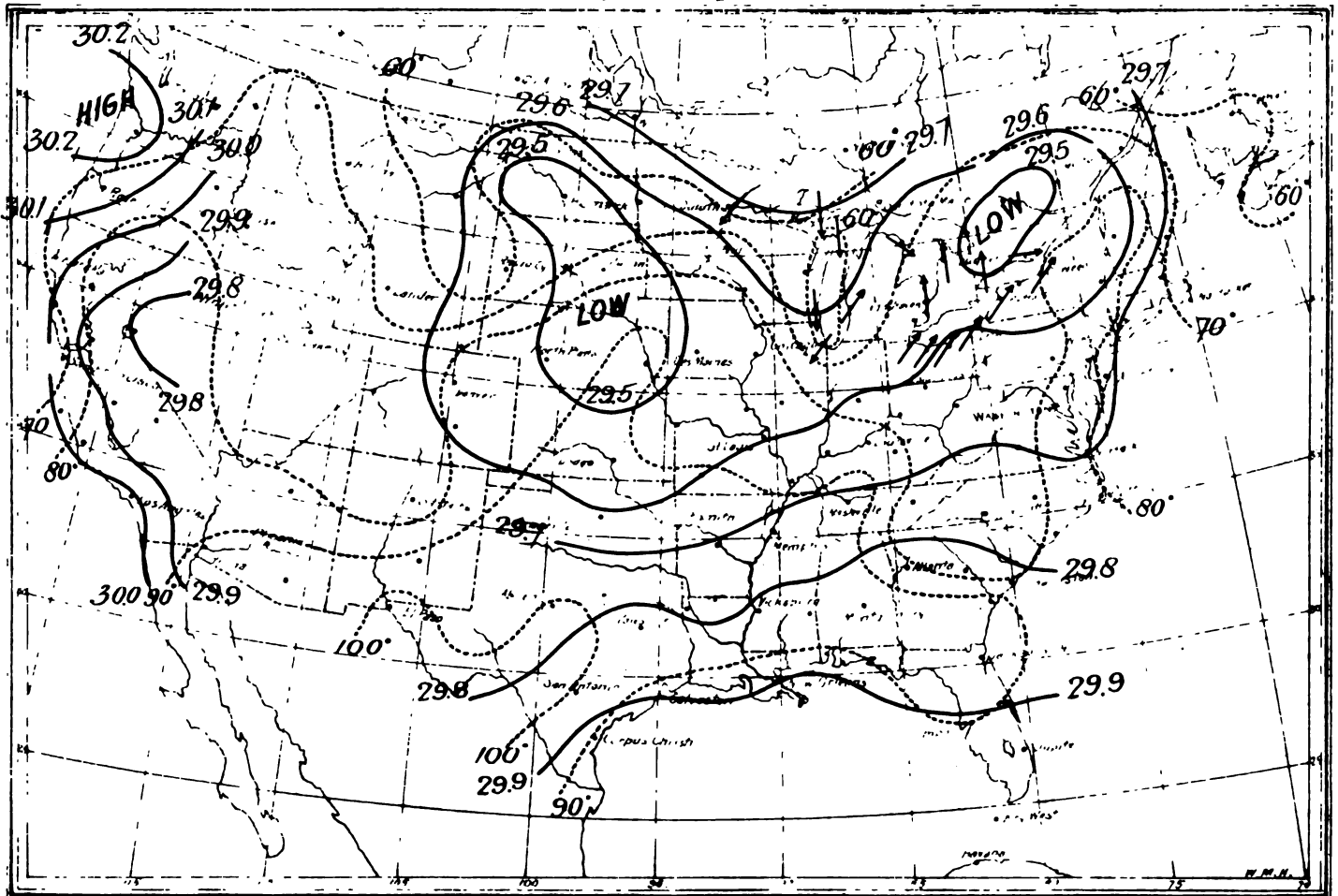


Chart OOCLXXI.

June 18, 1882—7 a. m.

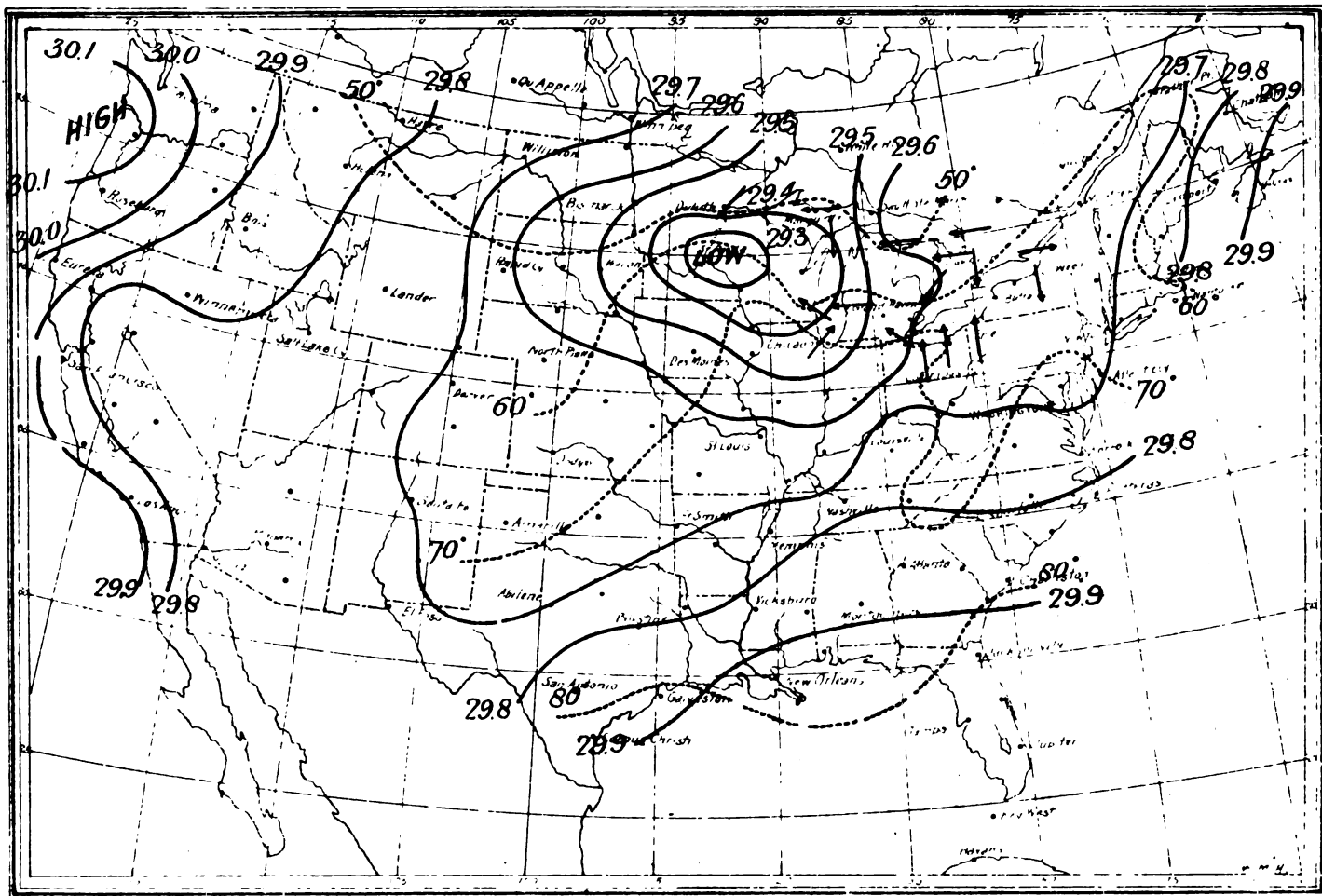


Chart OOCLXXII.

June 18, 1882—3 p. m.

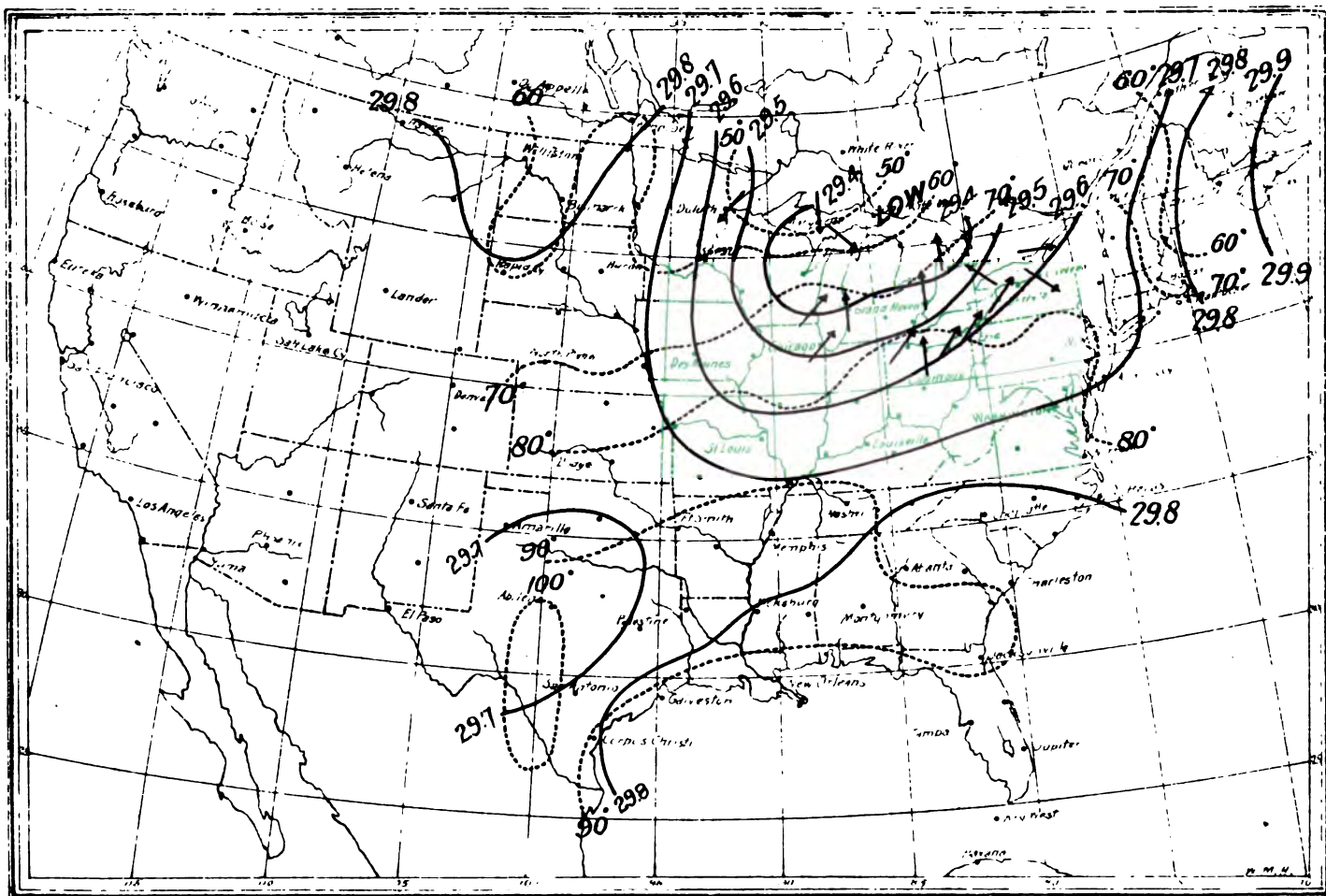


Chart COOLXXIII.

June 22, 1892—3 a. m.

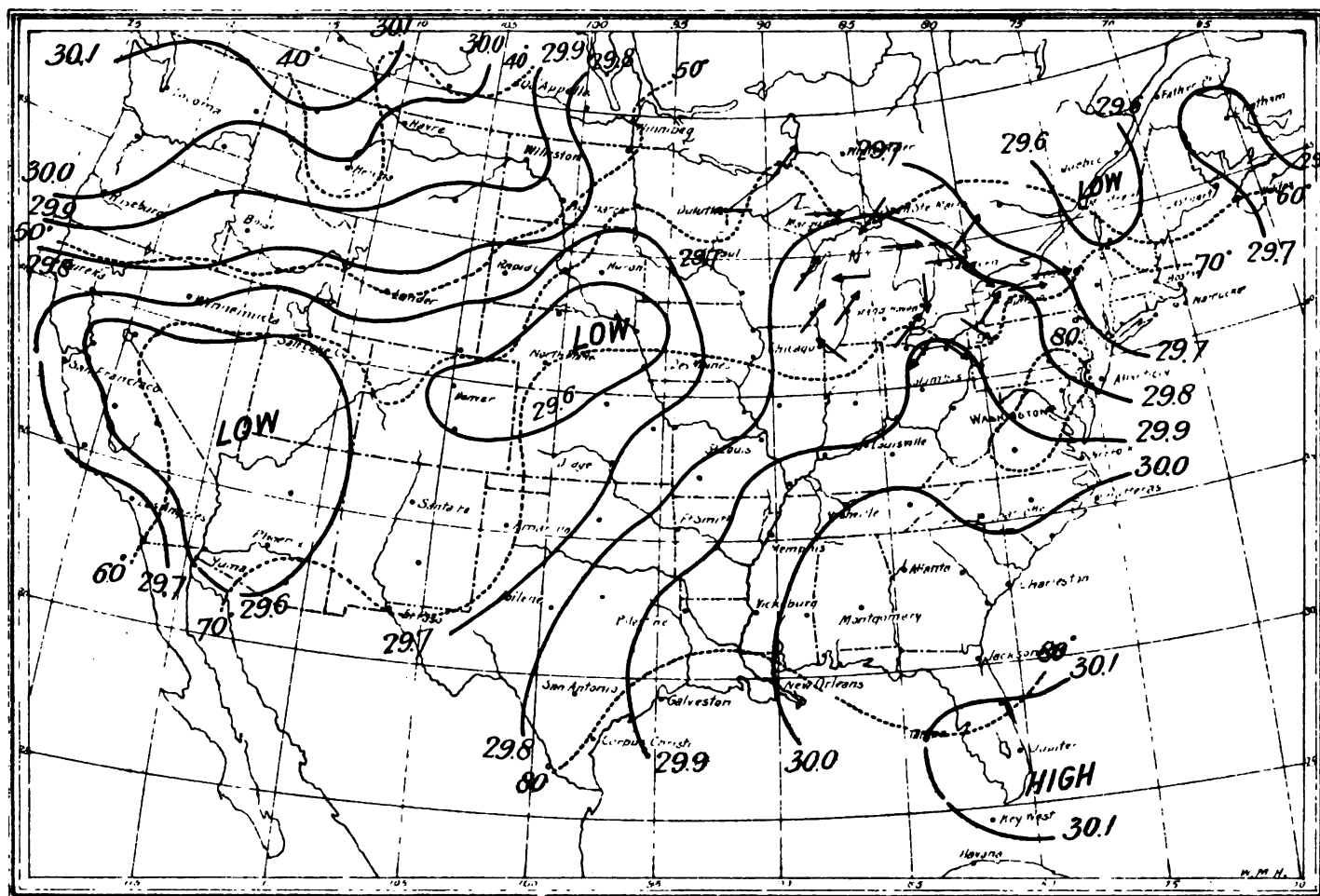


Chart COOLXXIV.

June 22, 1892—8 p. m.

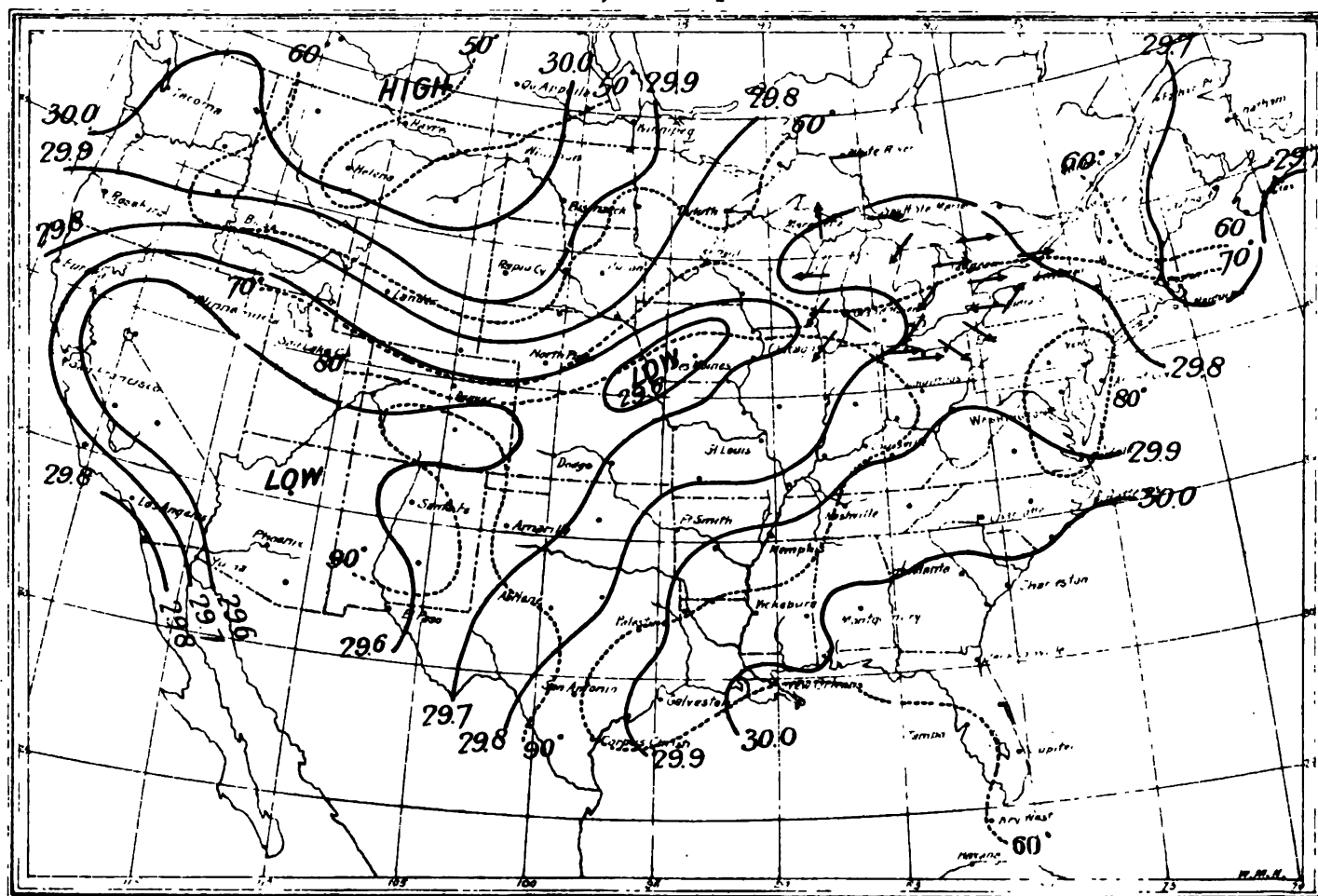


Chart COOLXXV.

June 28, 1892—8 a. m.

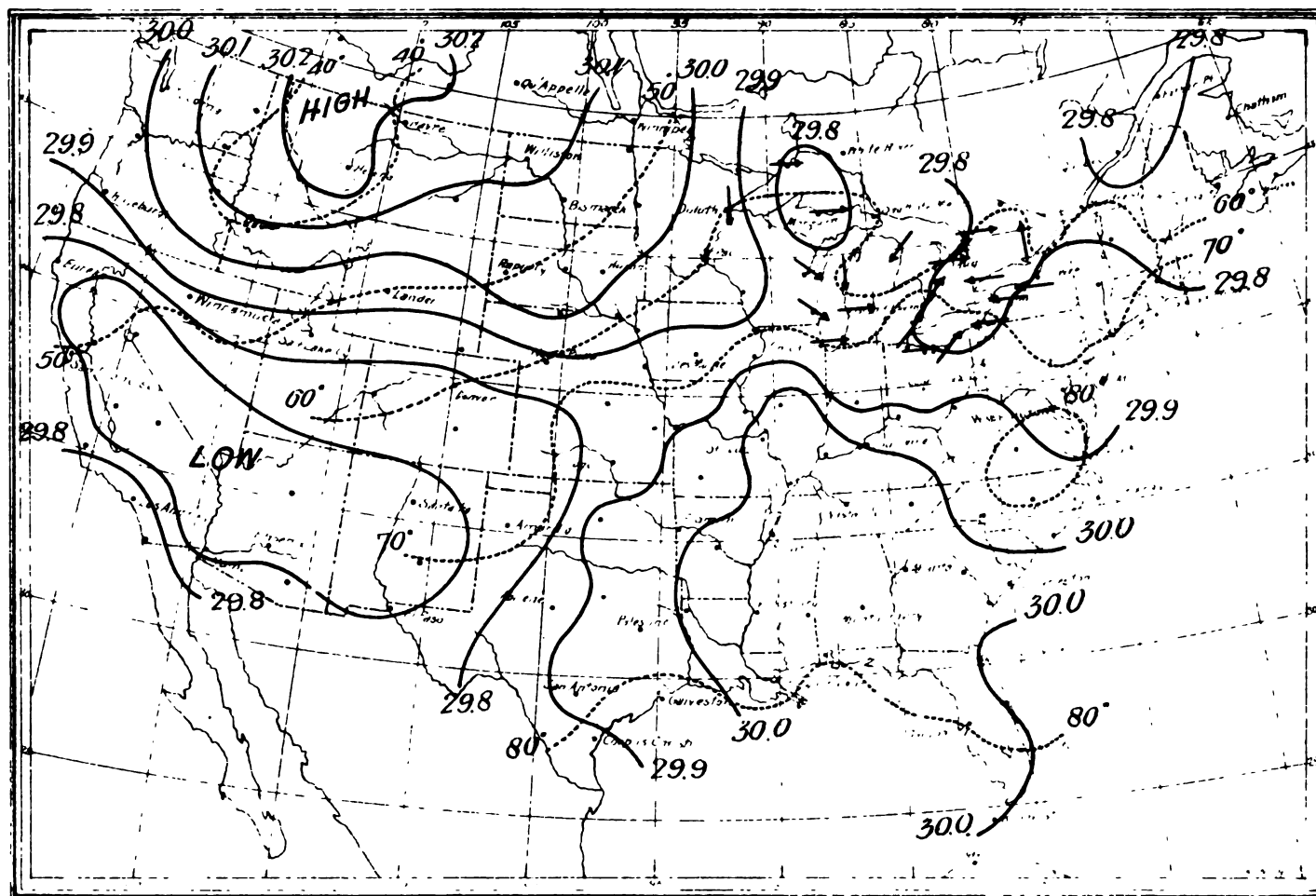


Chart COOLXXVI.

June 28, 1892—8 p. m.

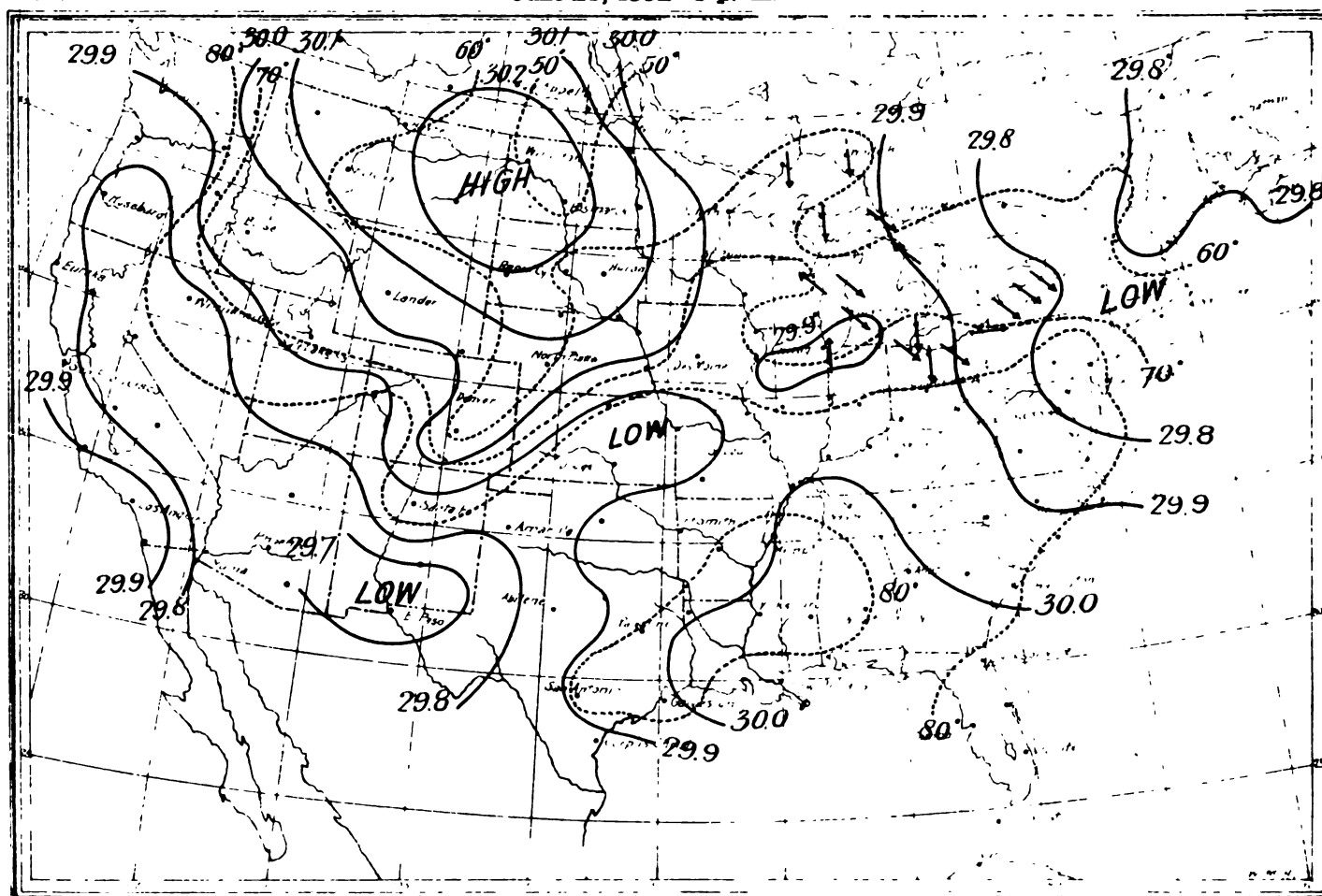


Chart COOLXXVII.

June 20, 1893-8 a. m.

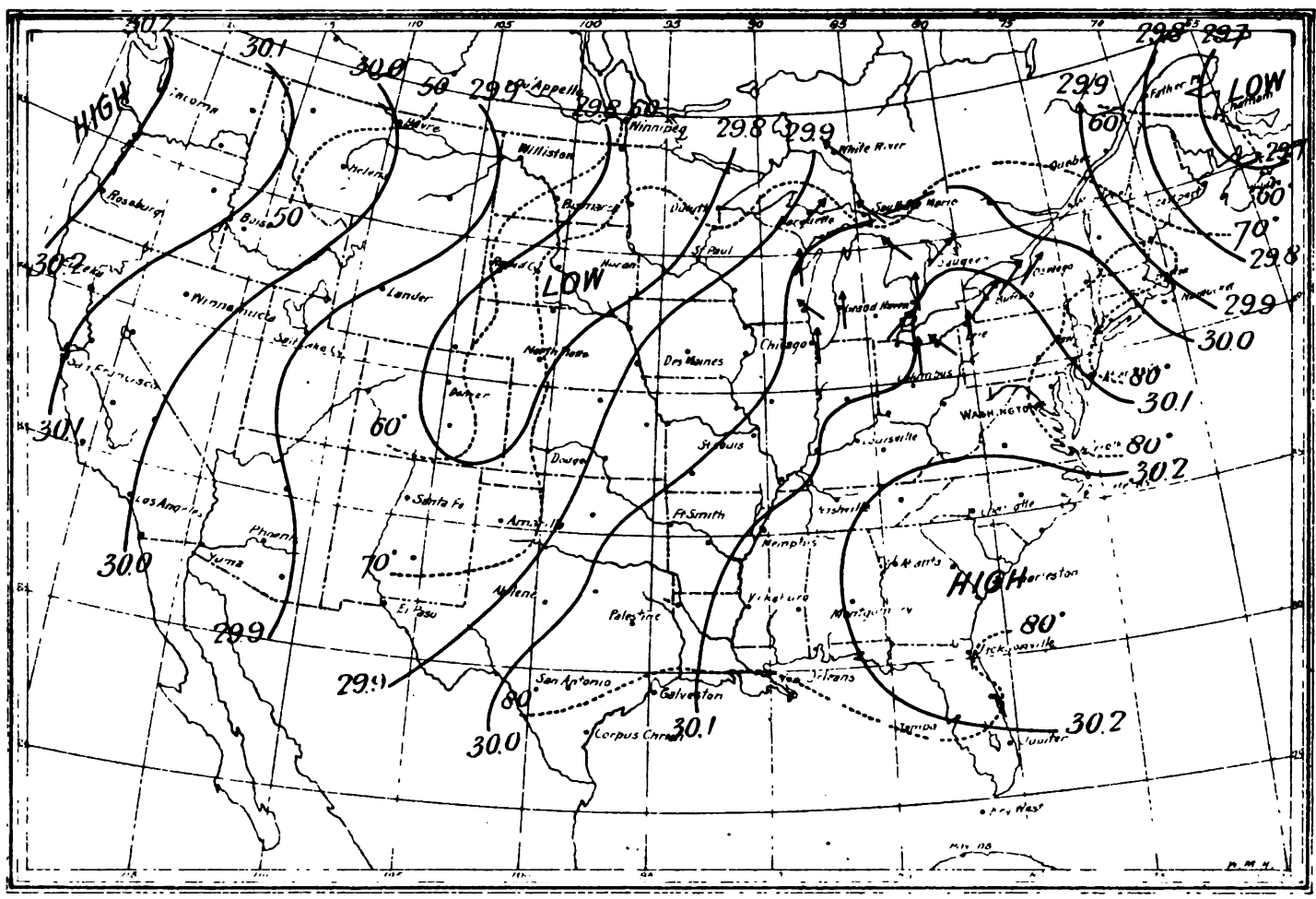
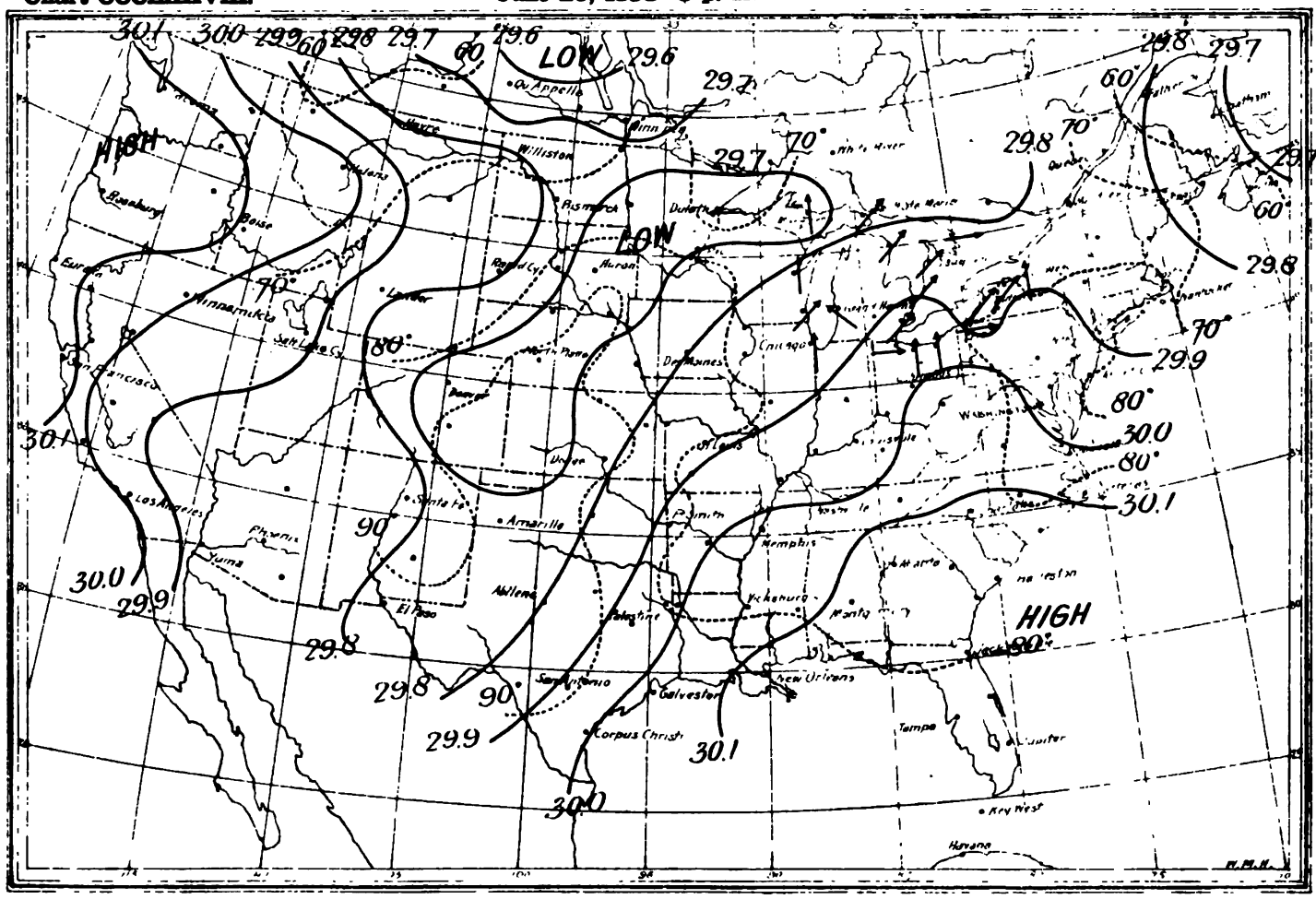


Chart COOLXXVIII.

June 20, 1893-8 p. m.



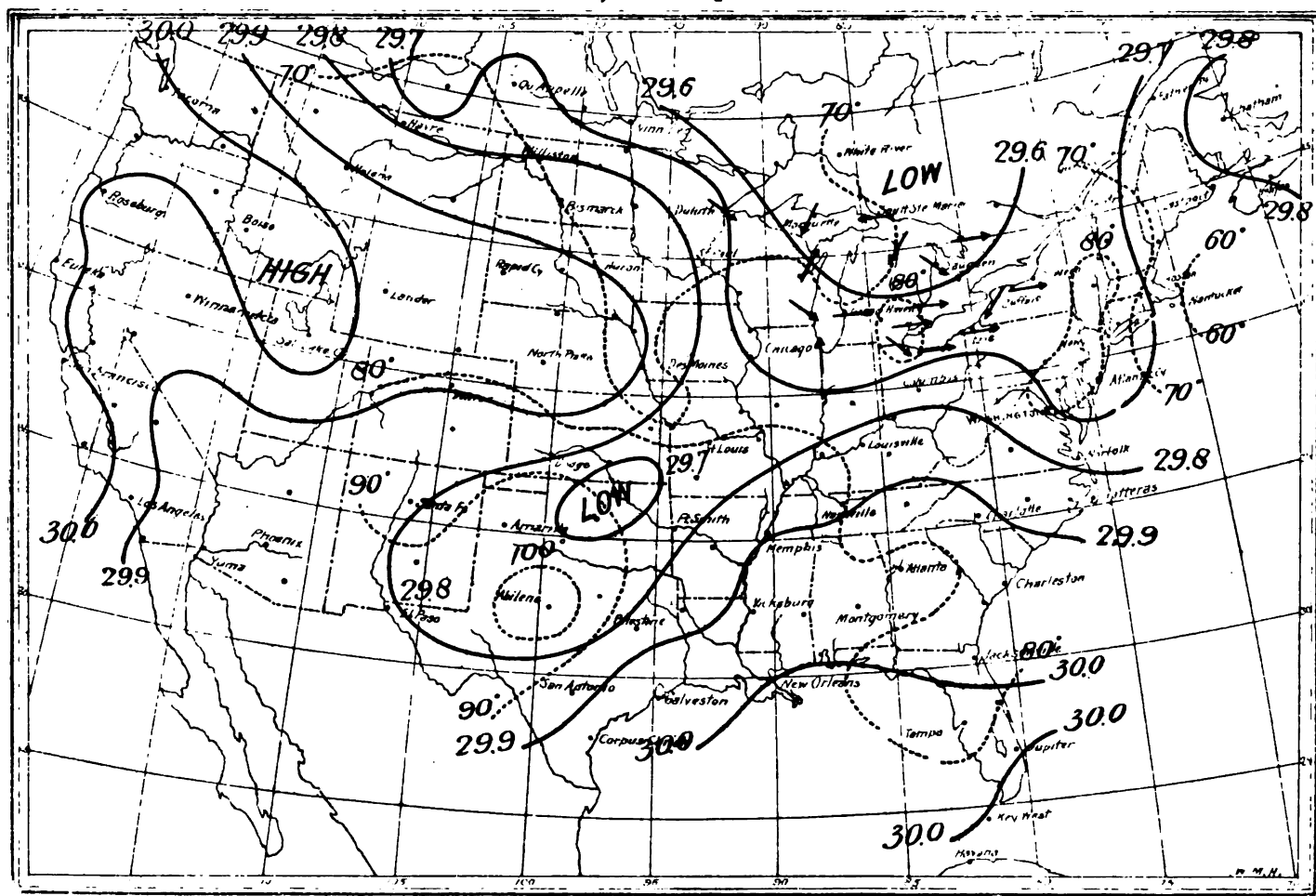


Chart 000LXXXI

June 1, 1897—8 a. m.

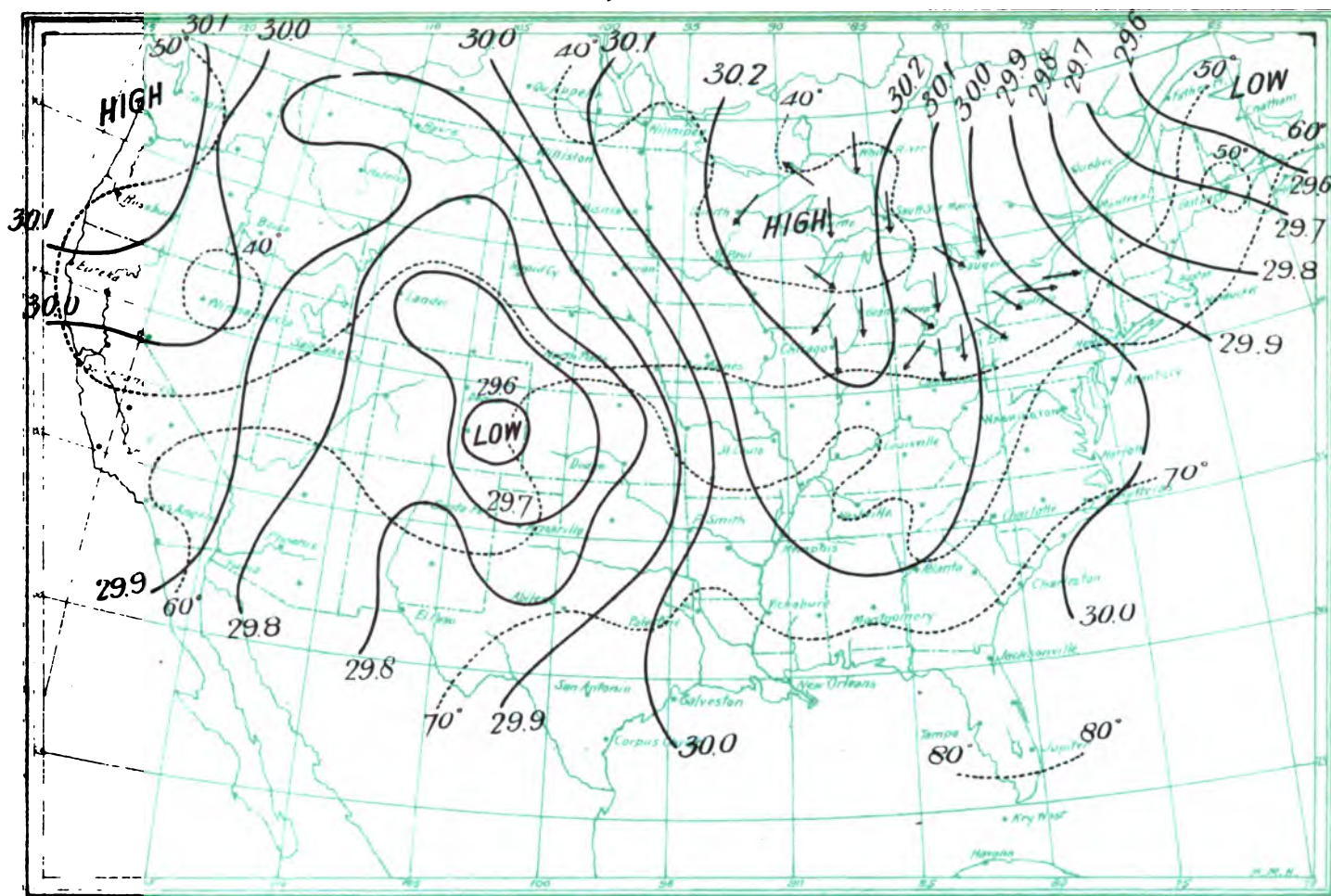


Chart 000LXXXII

June 1, 1897—8 p. m.

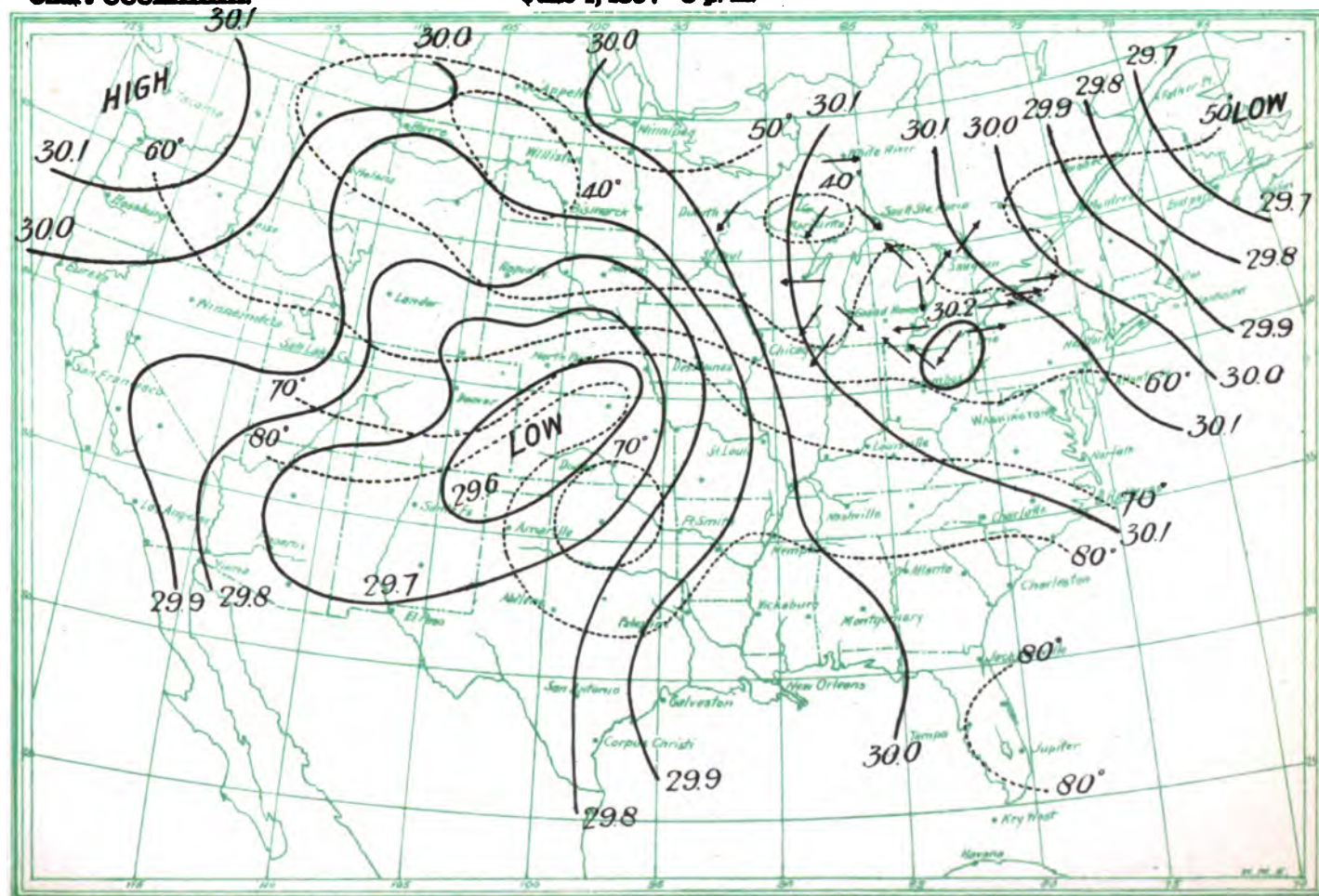


Chart 000LXXXIII.

June 2, 1897—8 a. m.

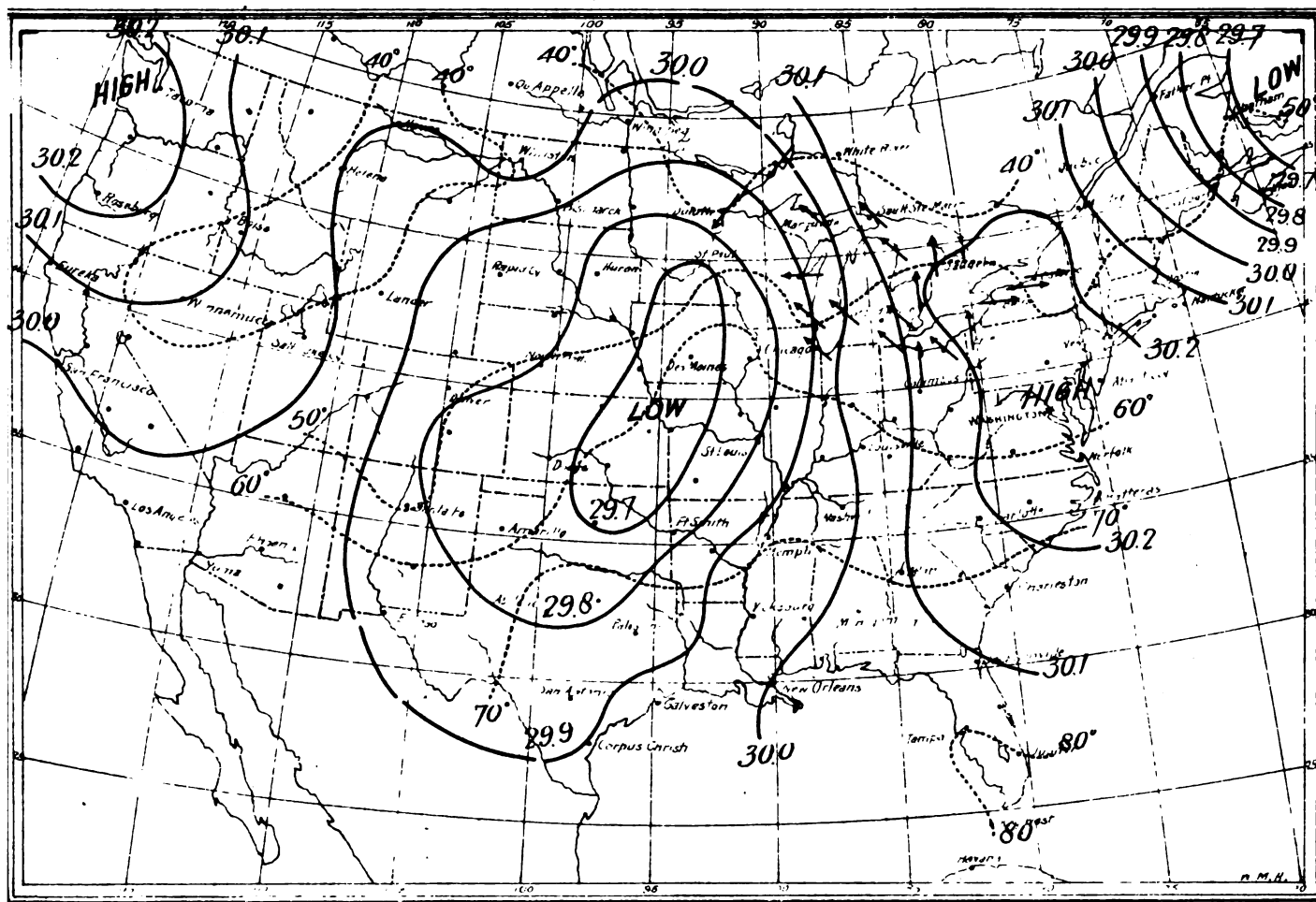
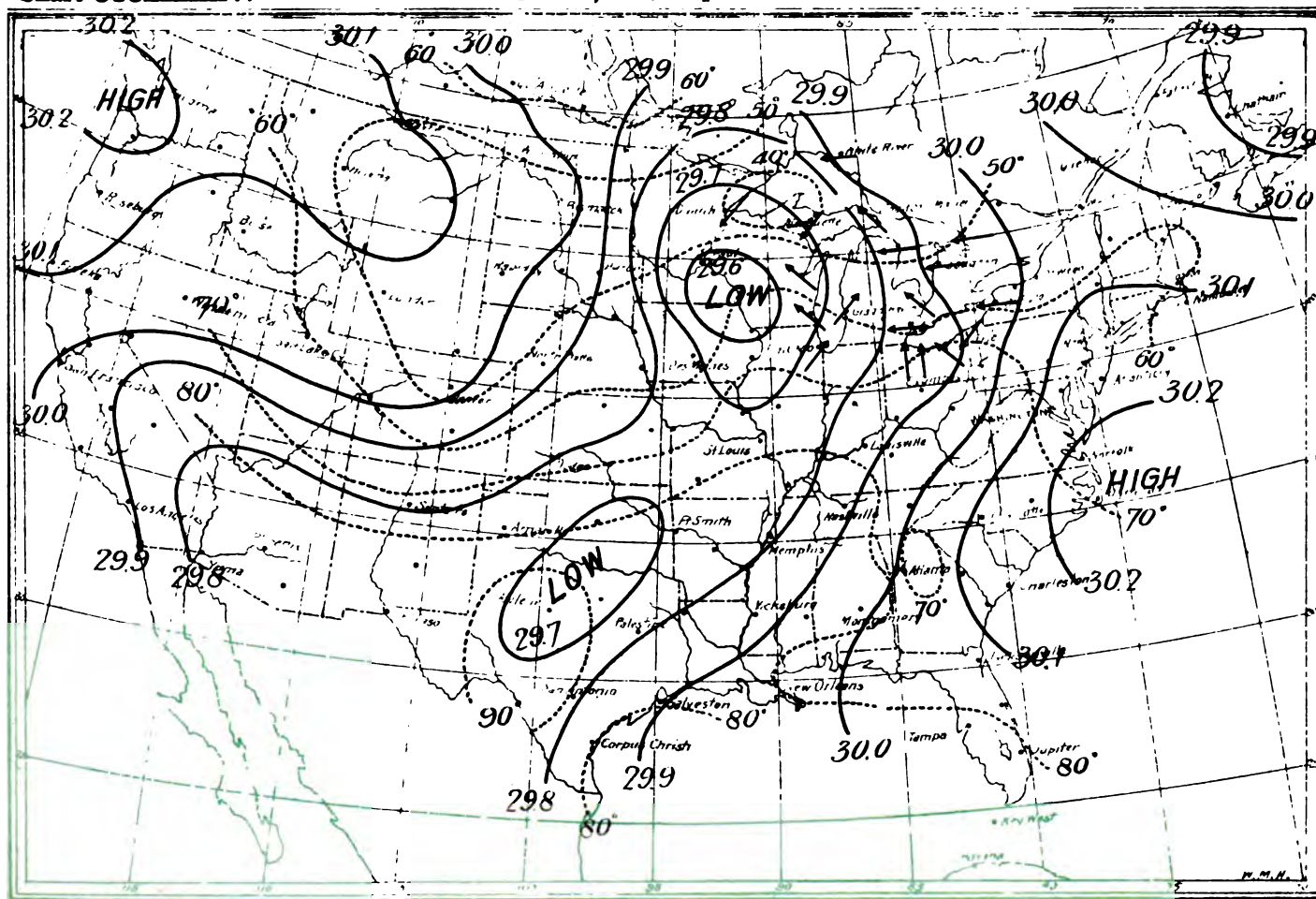
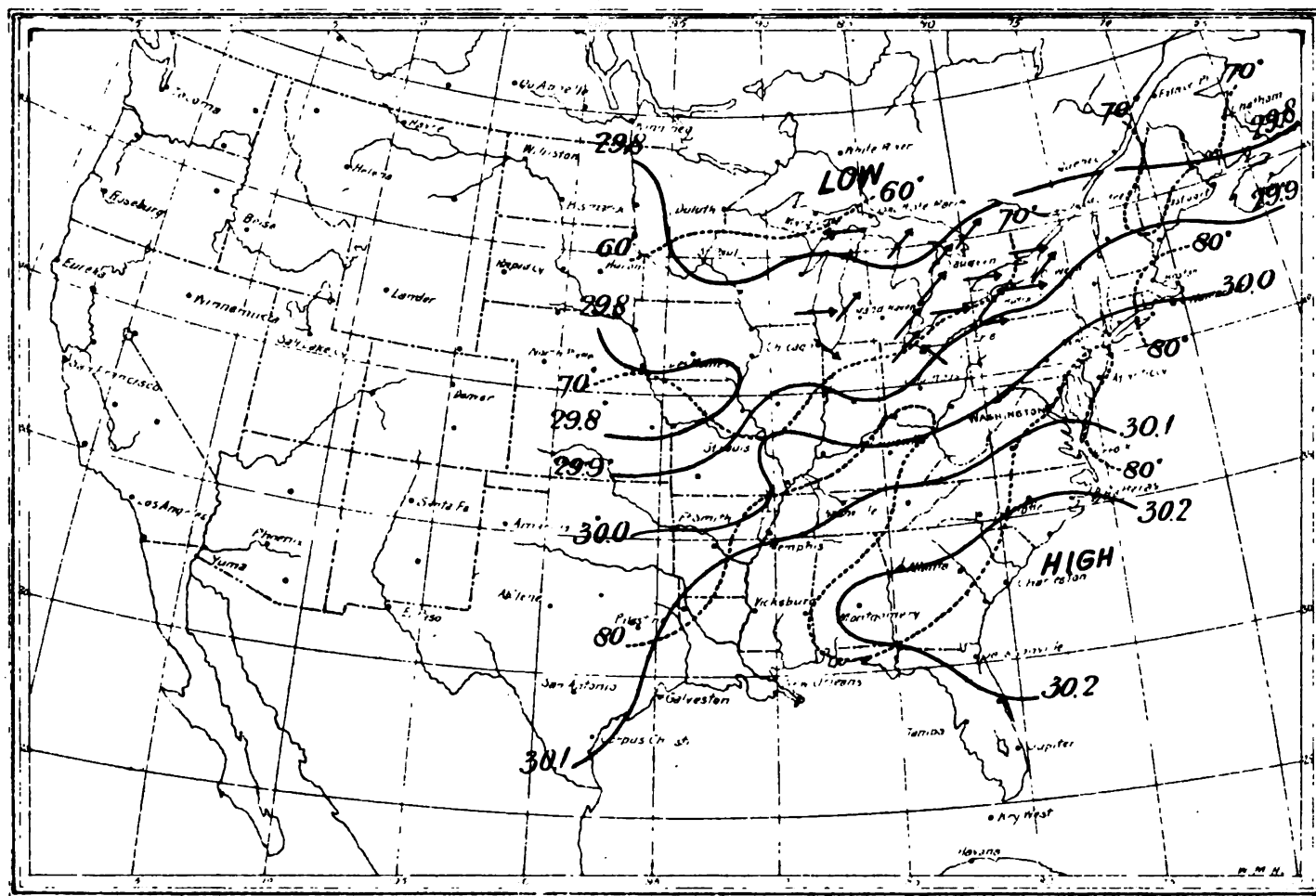


Chart 000LXXXIV.

June 2, 1897—8 p. m.



July 4, 1876—7:35 a. m.



July 4, 1876—4:35 p. m.

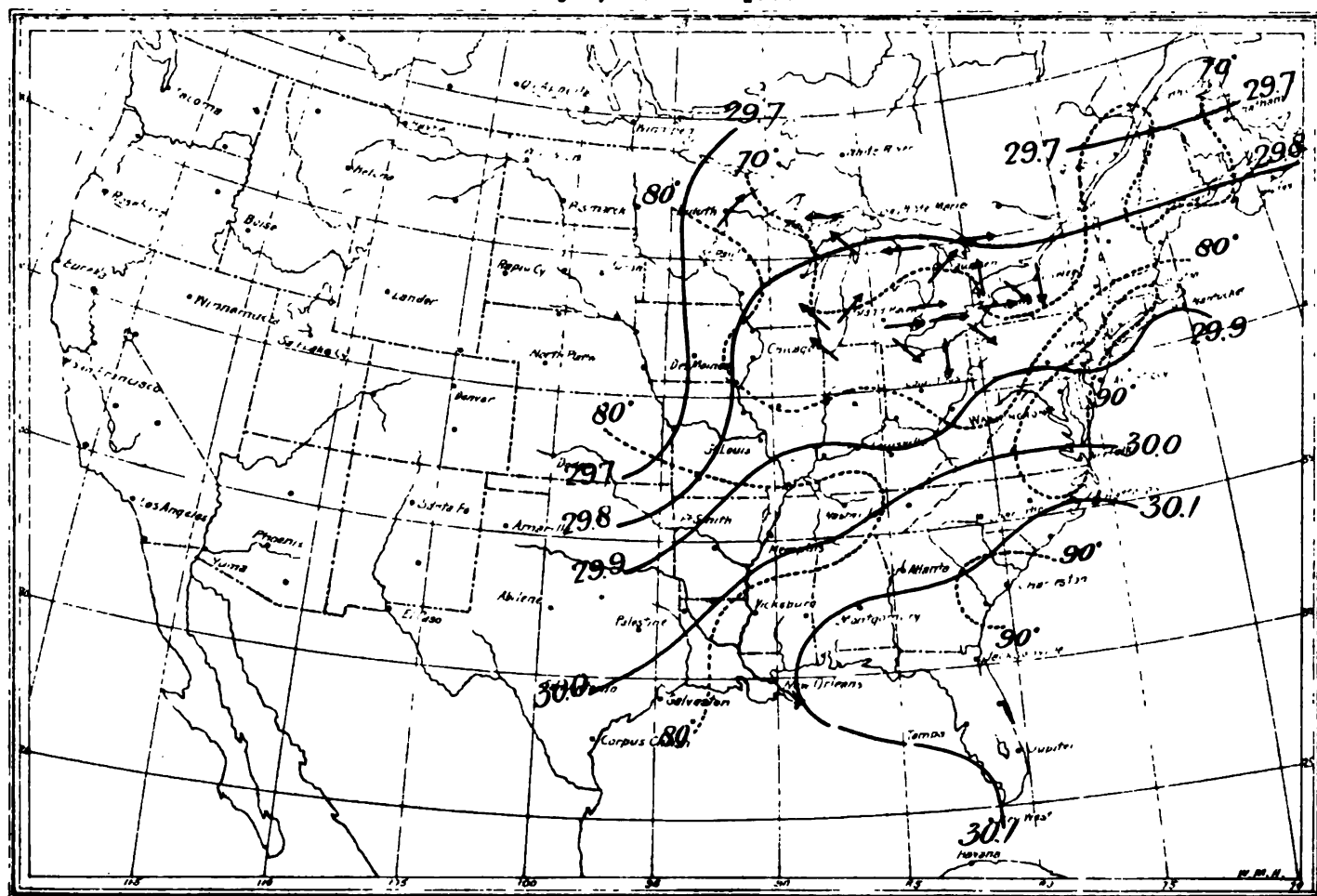


Chart 000LXXXVII.

July 5, 1876—7:35 a. m.

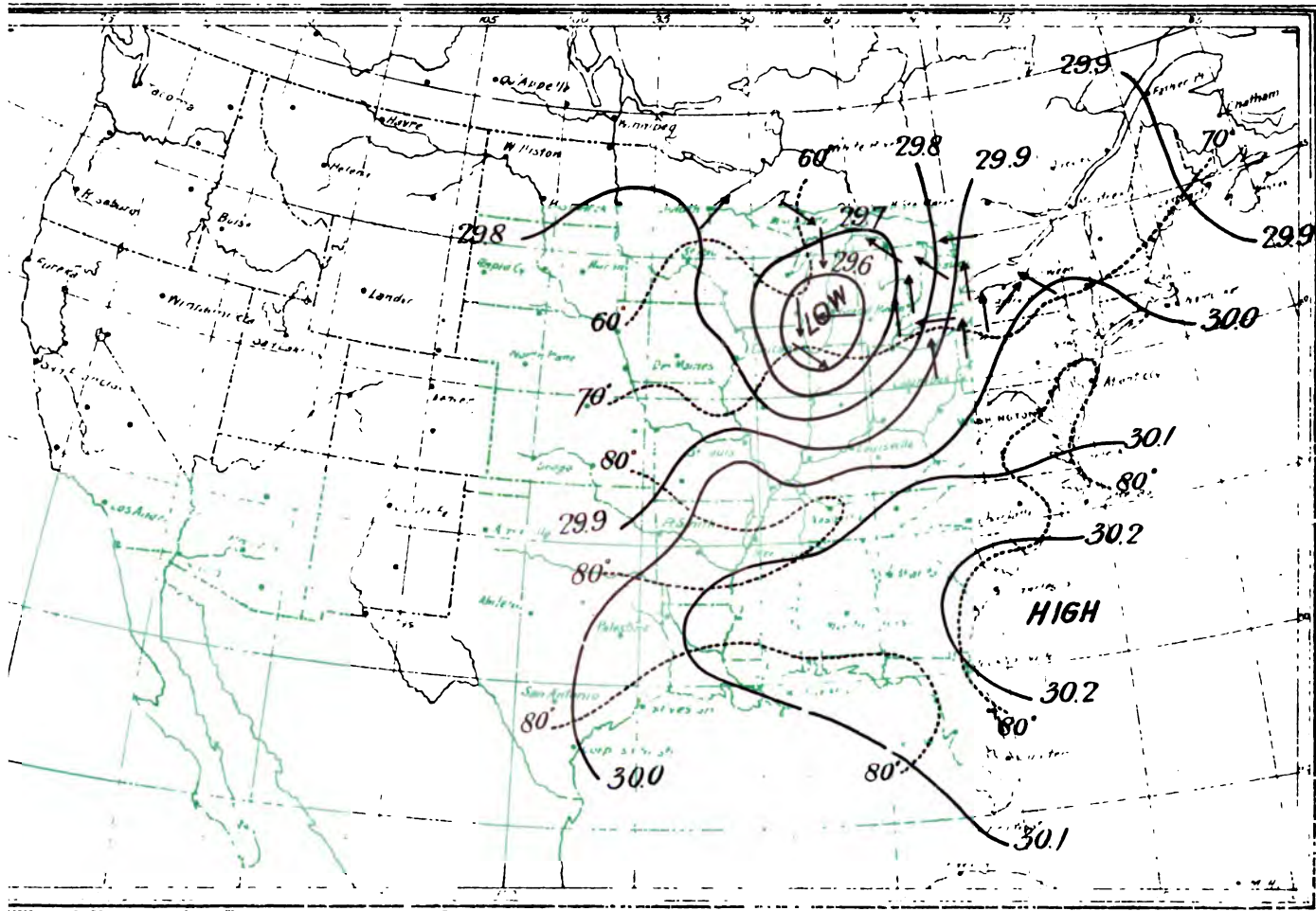


Chart 000LXXXVIII.

July 5, 1876—4:35 p. m.

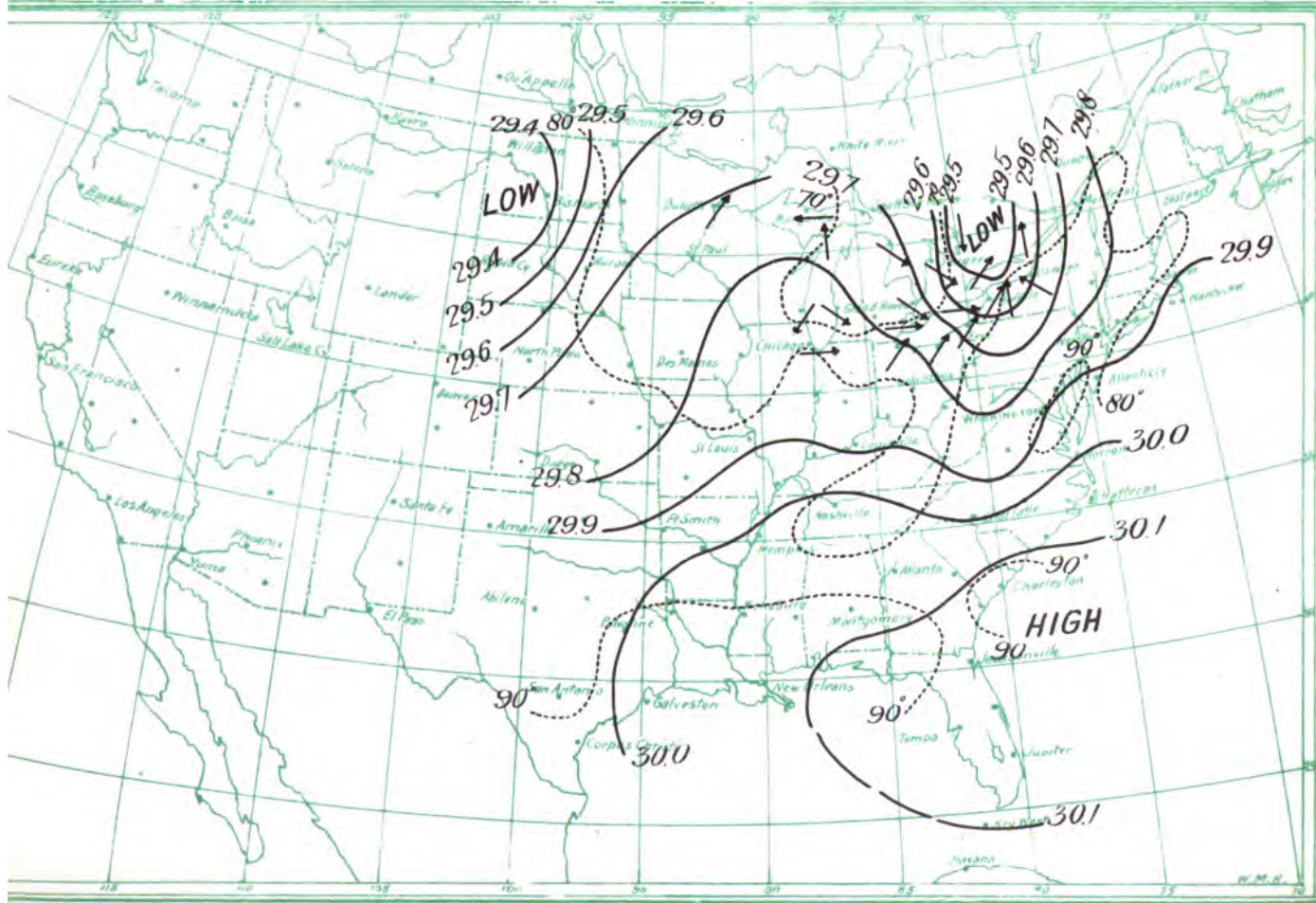


Chart CCOCLXXXIX.

July 24, 1878—4:35 p. m.

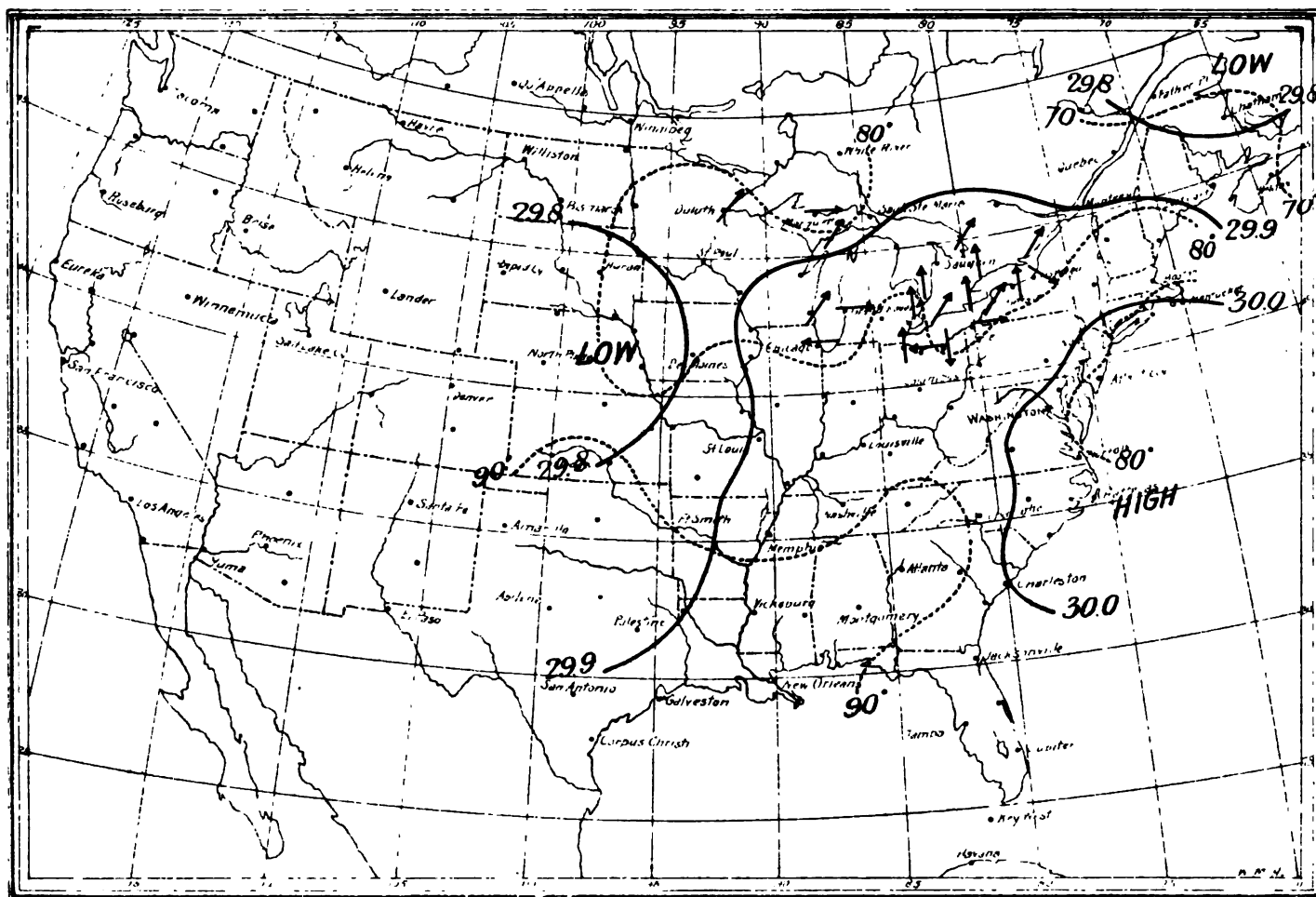
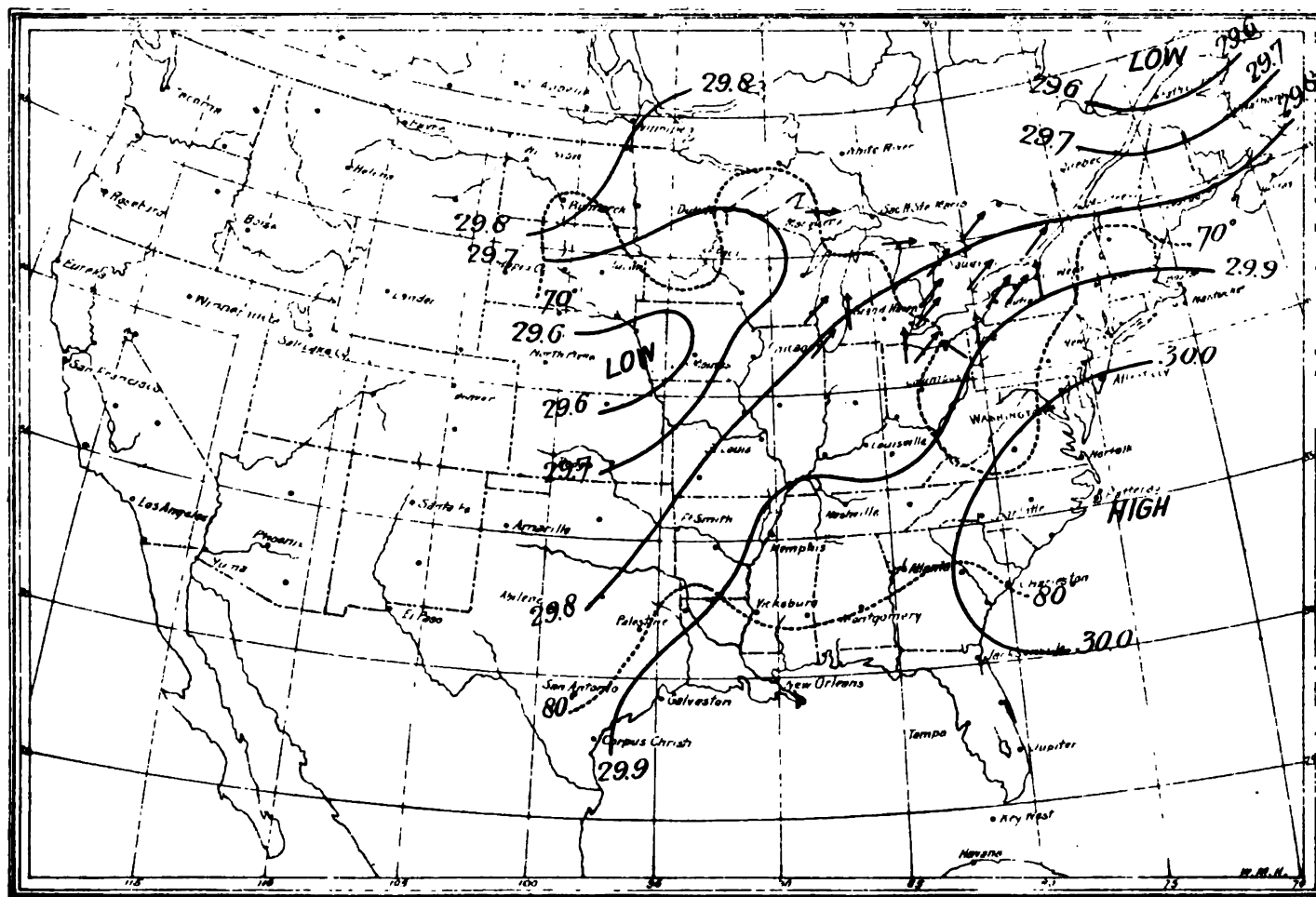
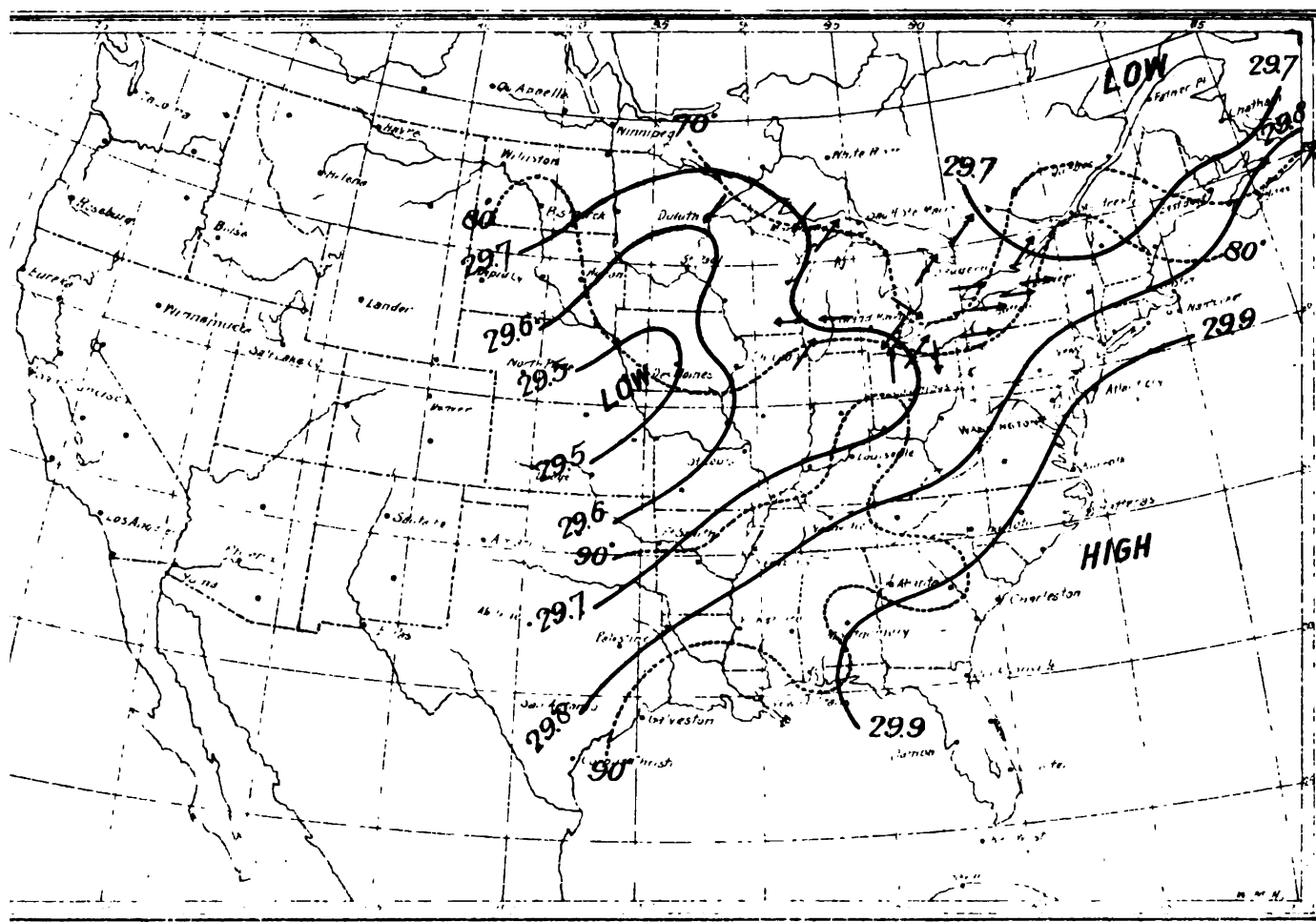


Chart CCOXO.

July 25, 1878—7:35 a. m.



July 25, 1878—4:35 p. m.



July 26, 1878—7:35 a. m.

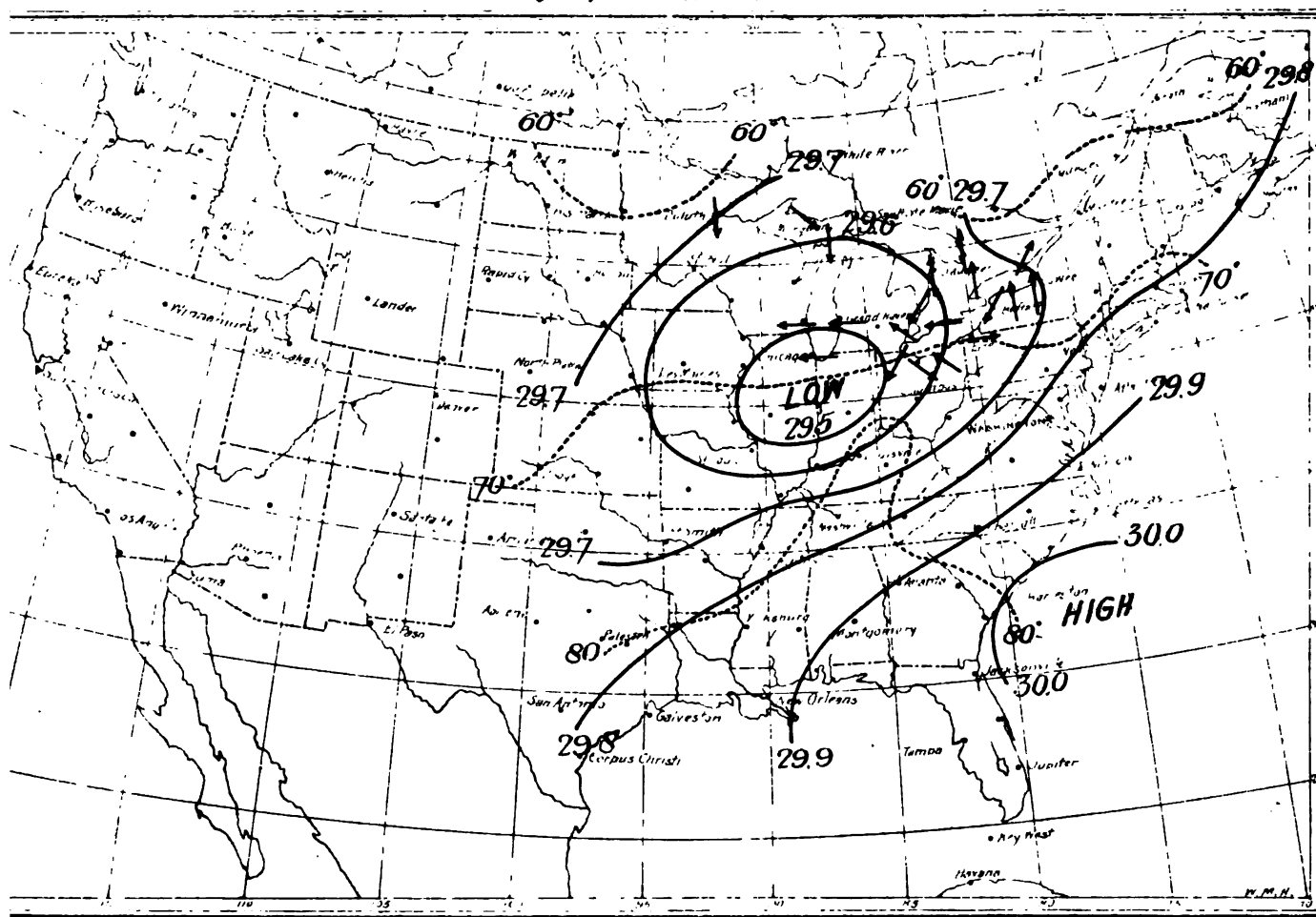


Chart OOOXOIII.

July 15, 1885—3 p. m.

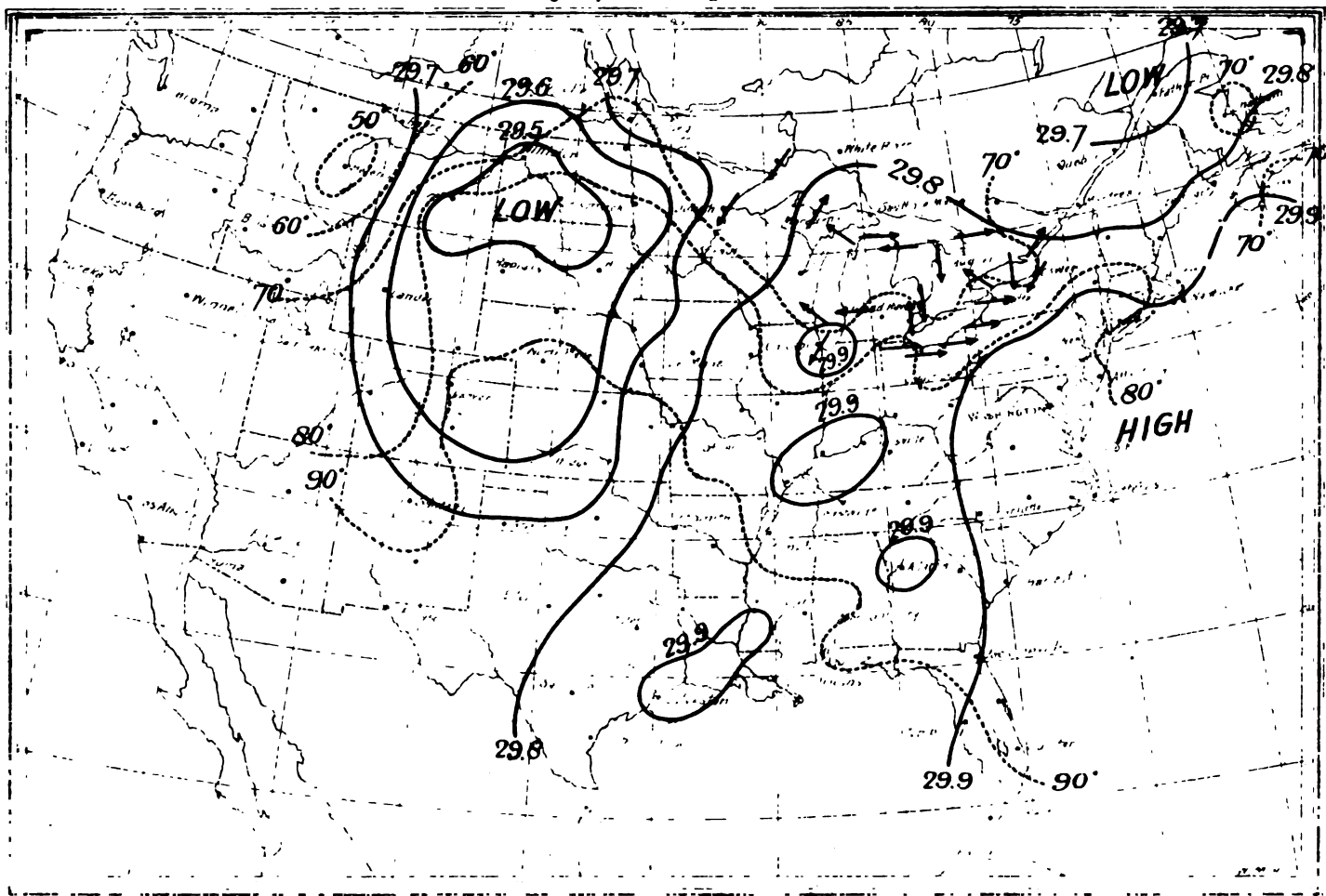
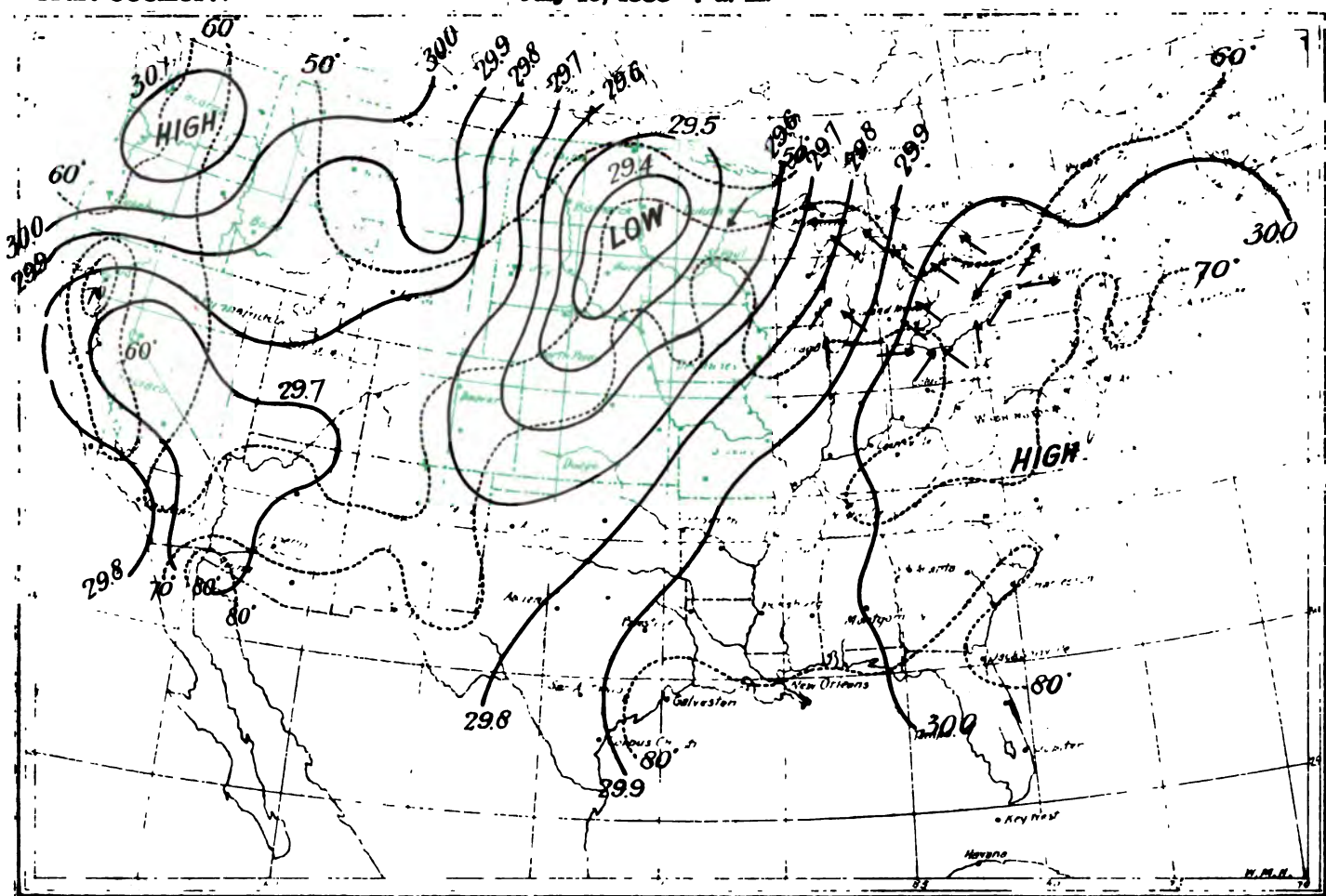


Chart OOOXOIV.

July 16, 1885—7 a. m.



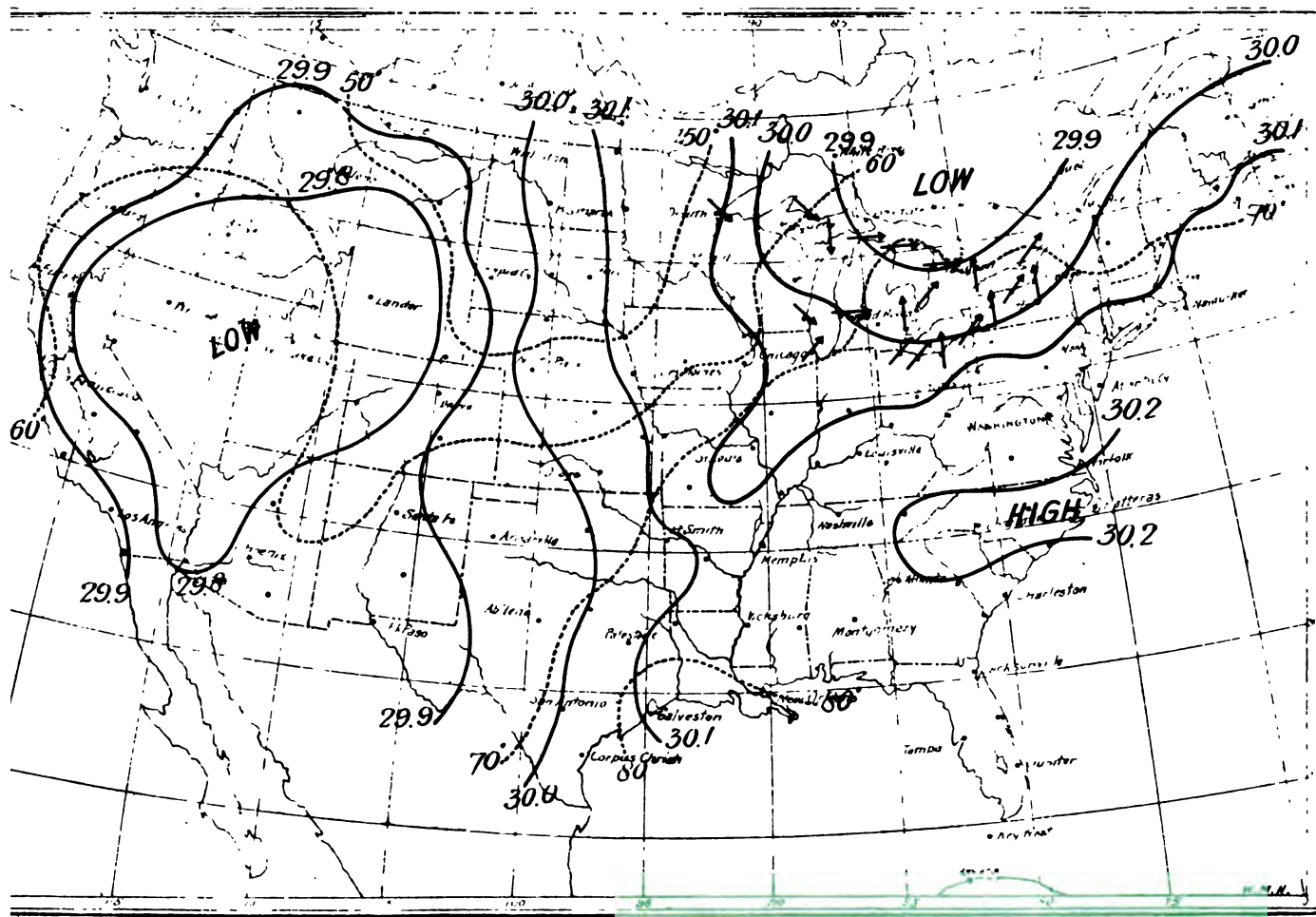
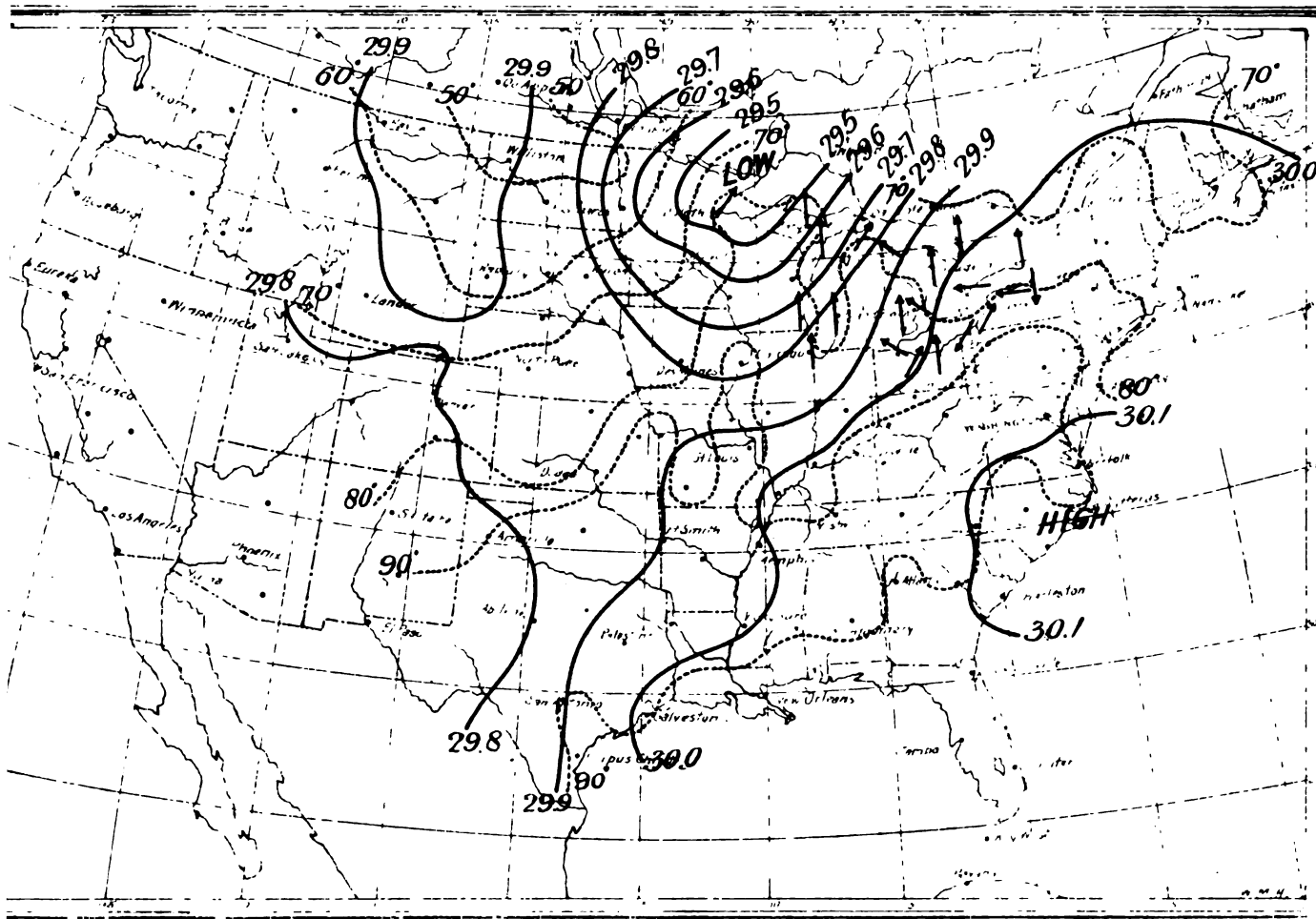


Chart OOOXOVII

July 15, 1891—8 p. m.

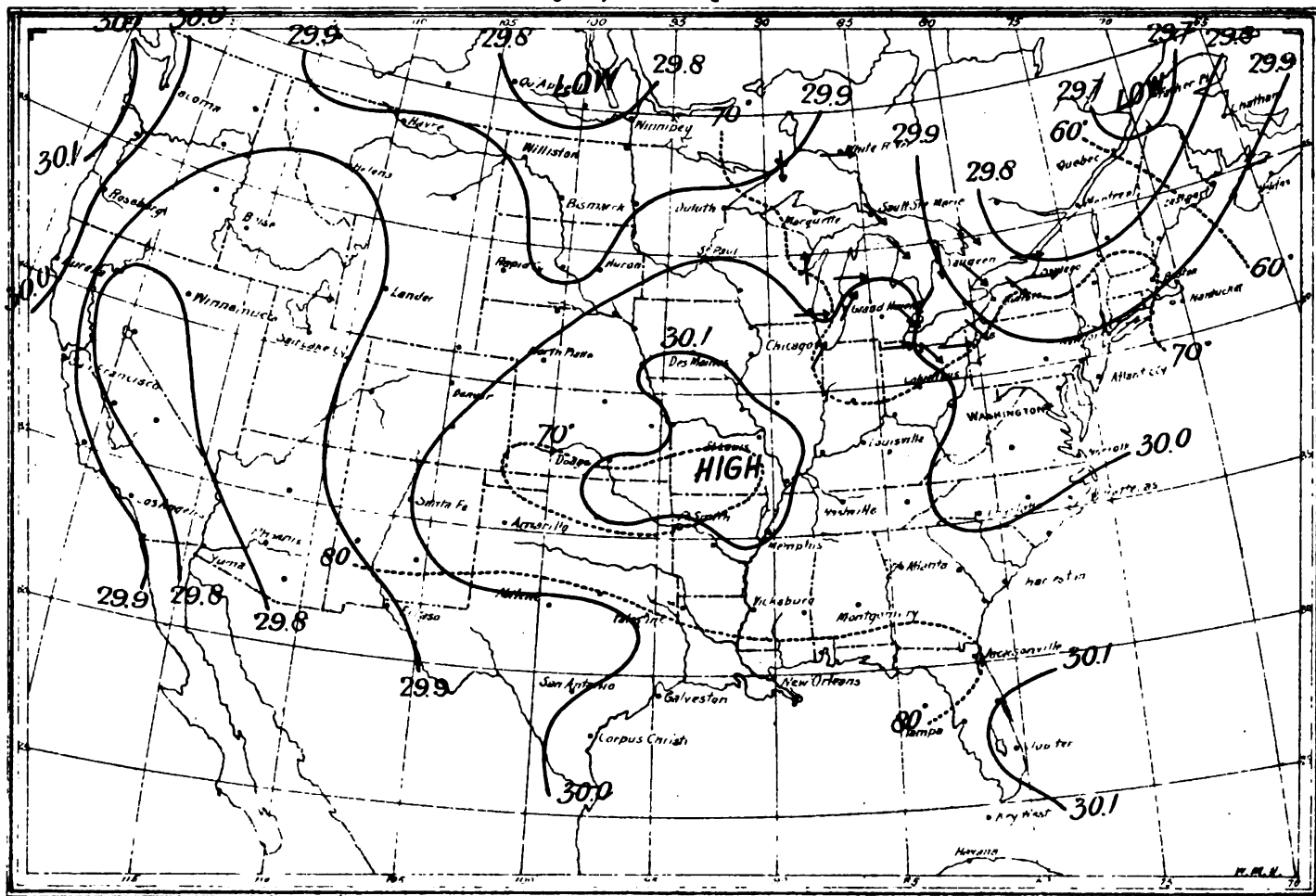
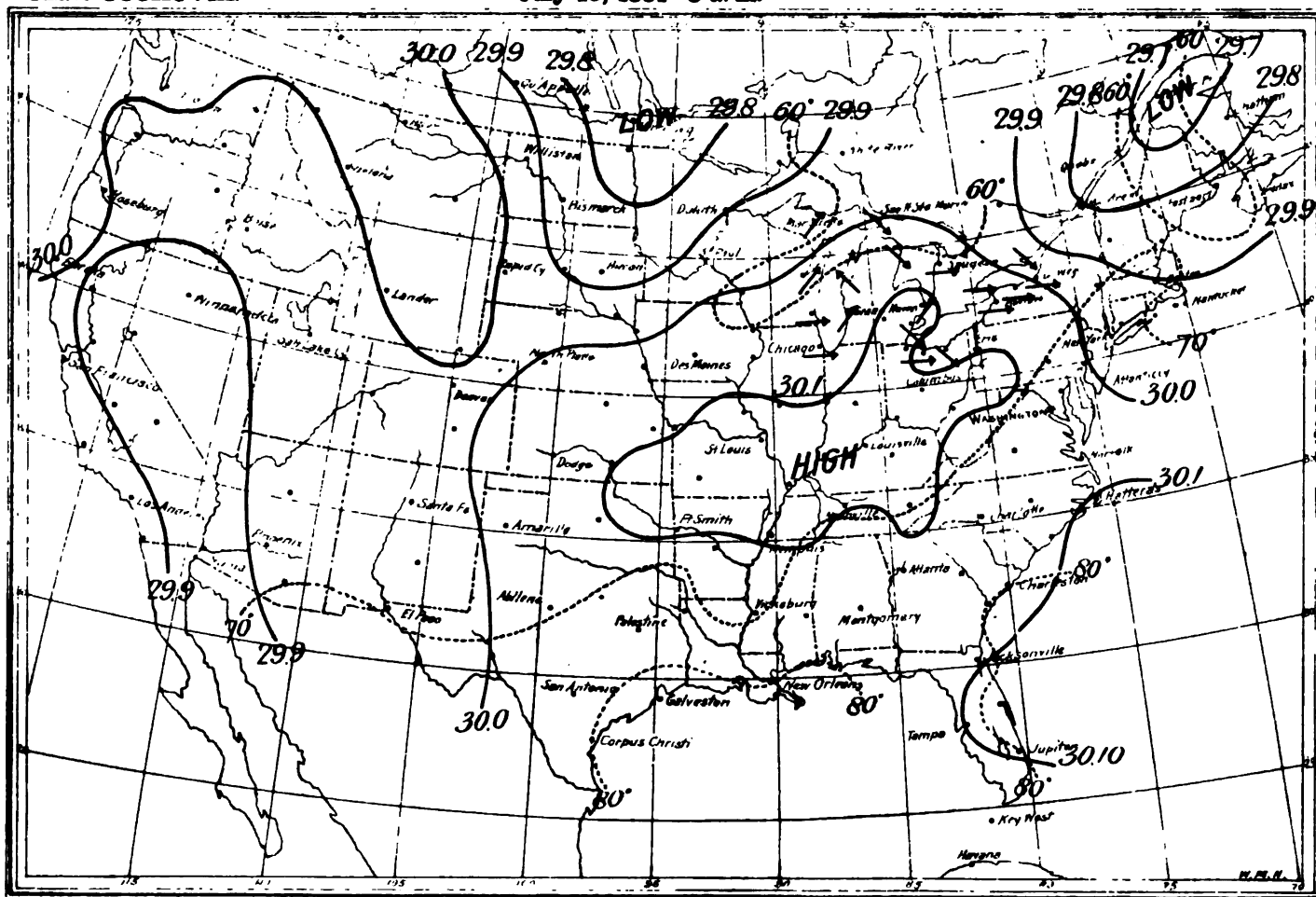


Chart OOOXOVIII

July 16, 1891—8 a. m.



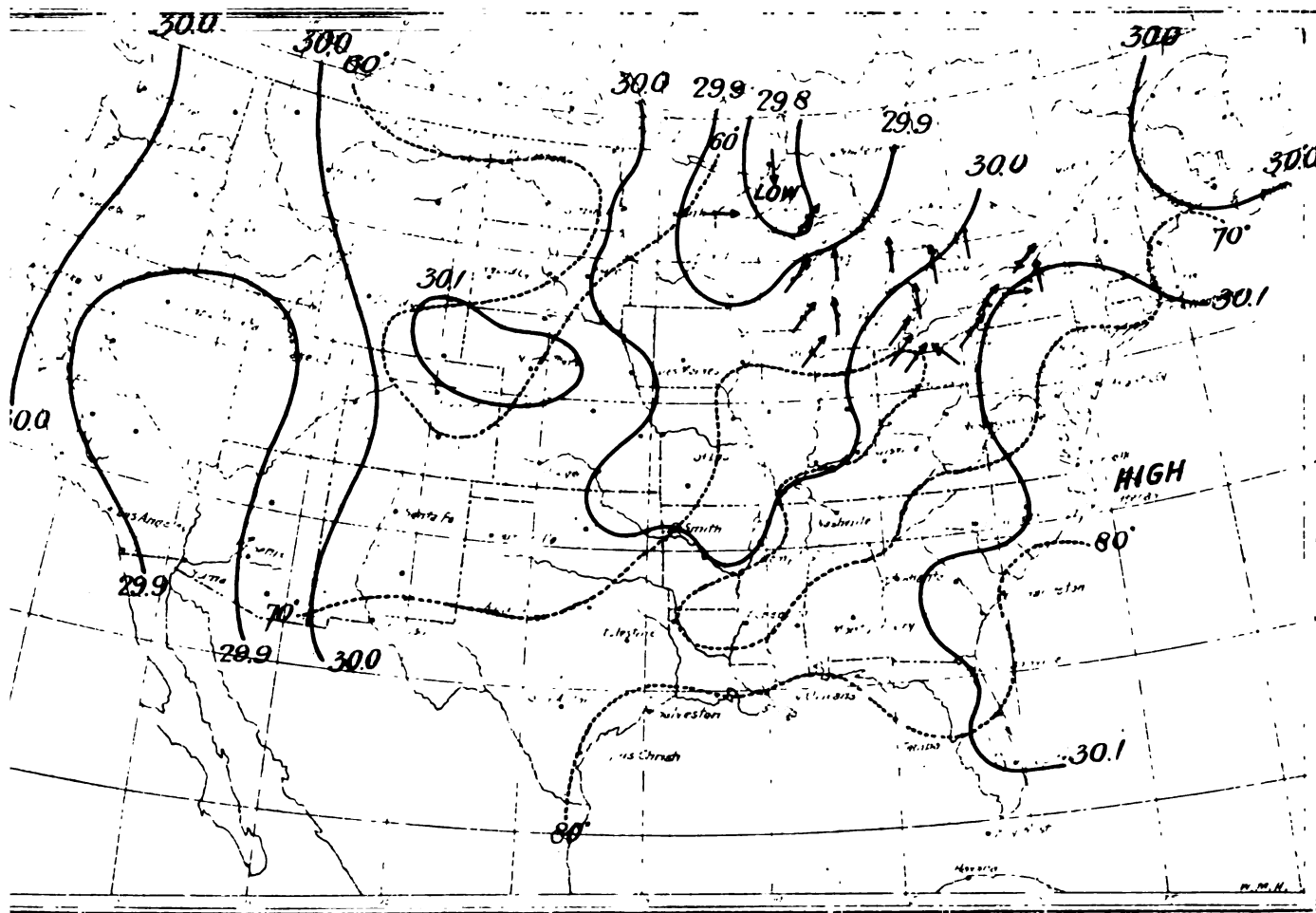
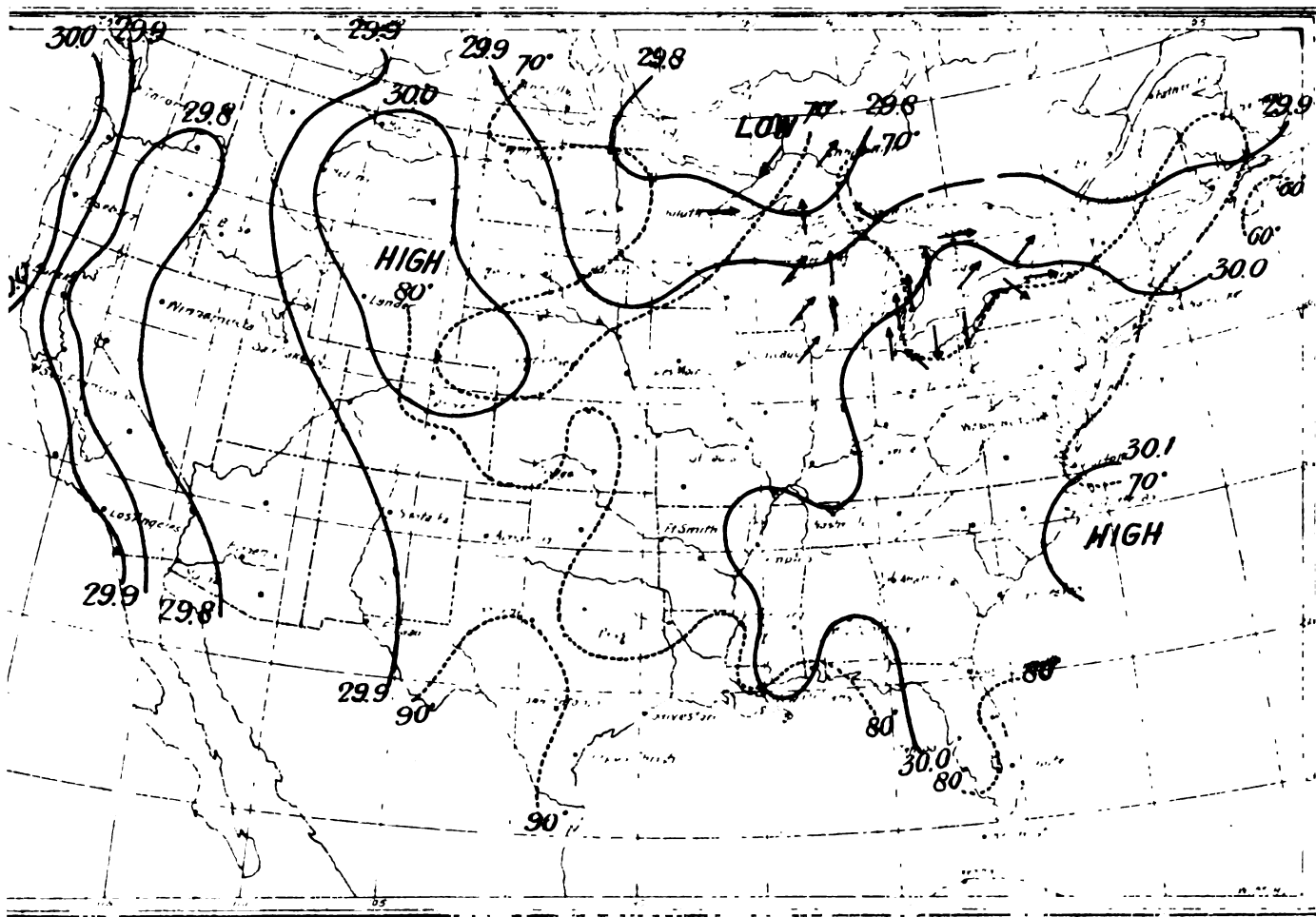


Chart CCCCCL

July 20, 1897—8 a. m.

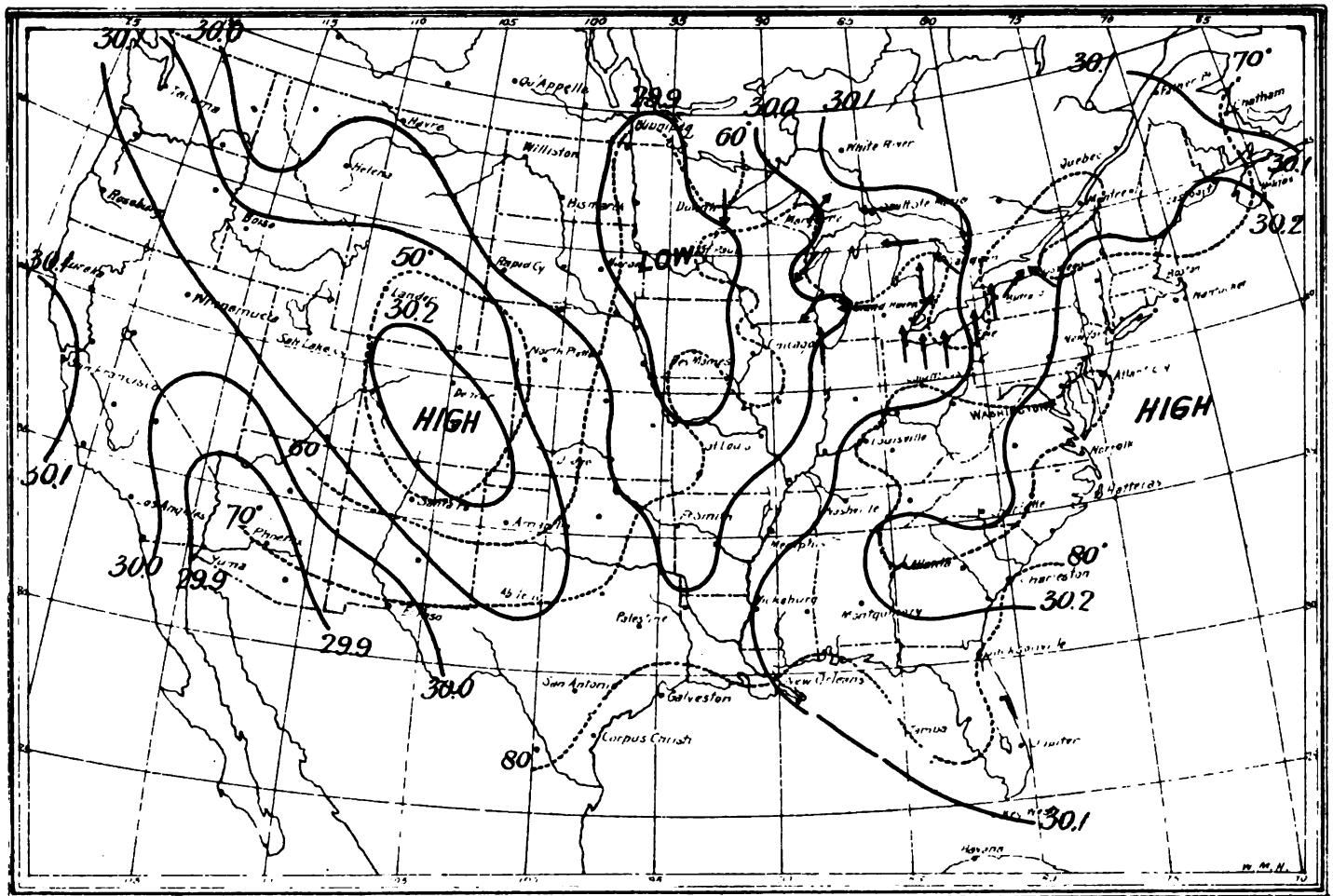
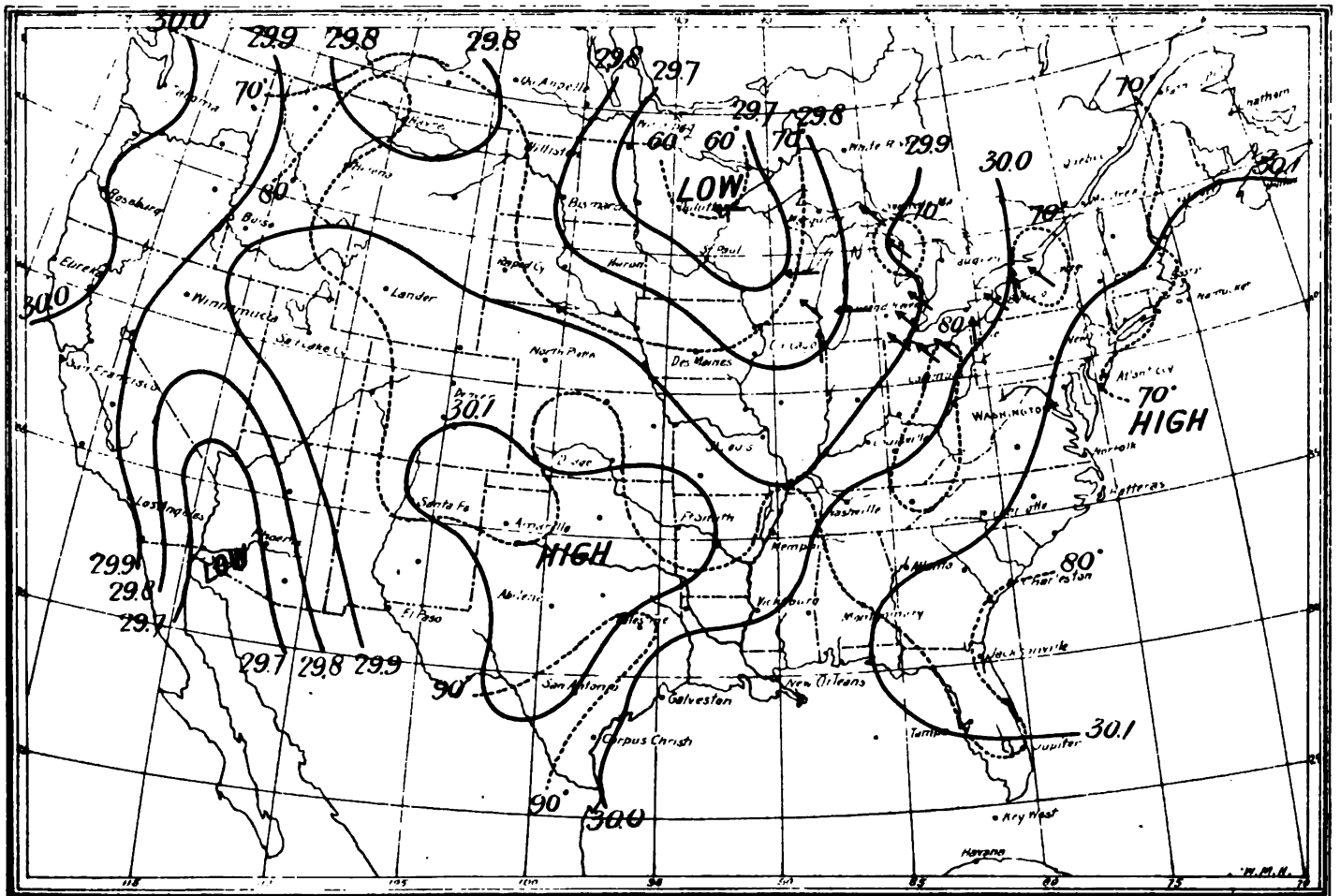
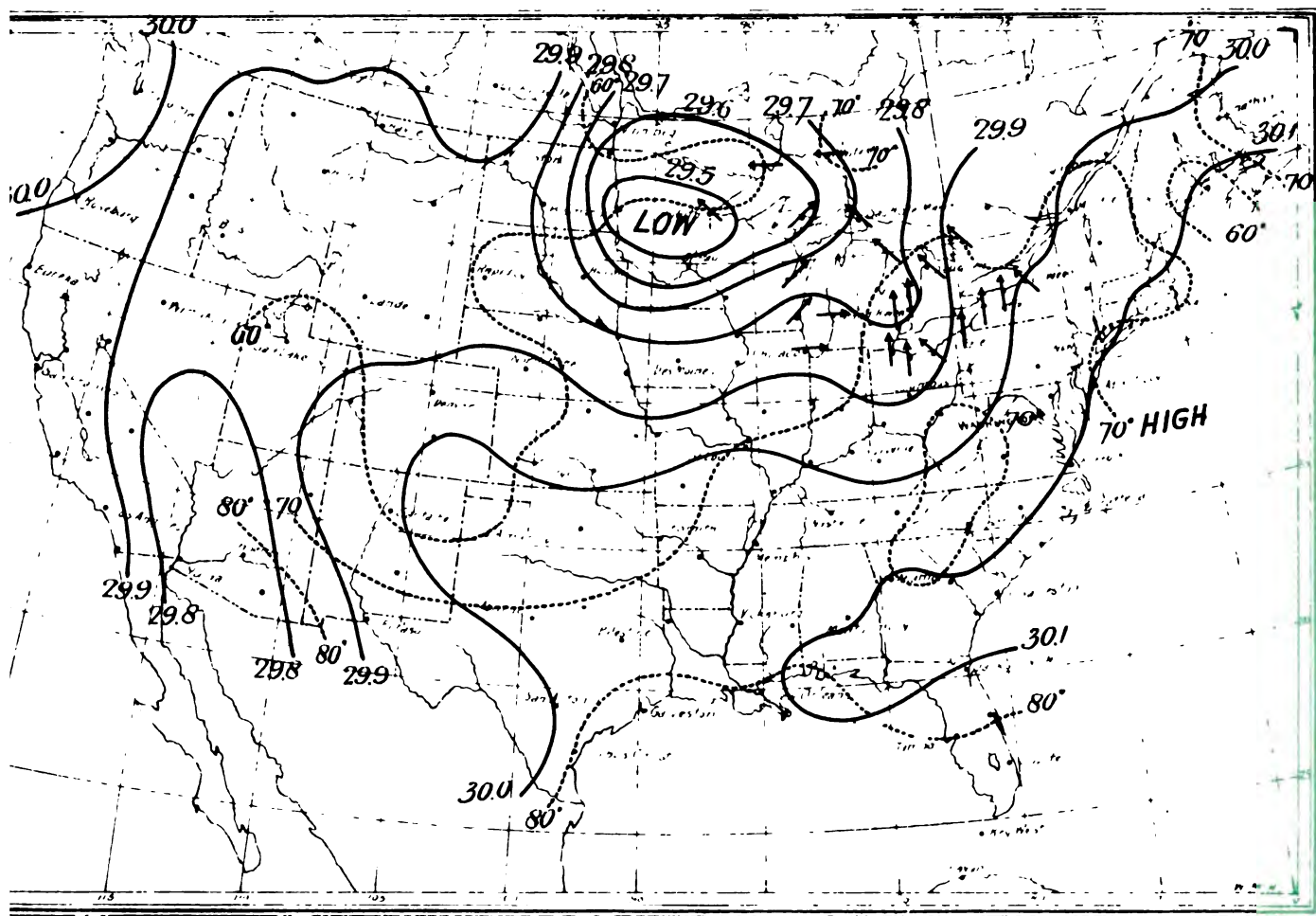


Chart CCCCCL

July 20, 1897—8 p. m.



July 21, 1897—8 a. m.



July 21, 1897—8 p. m.

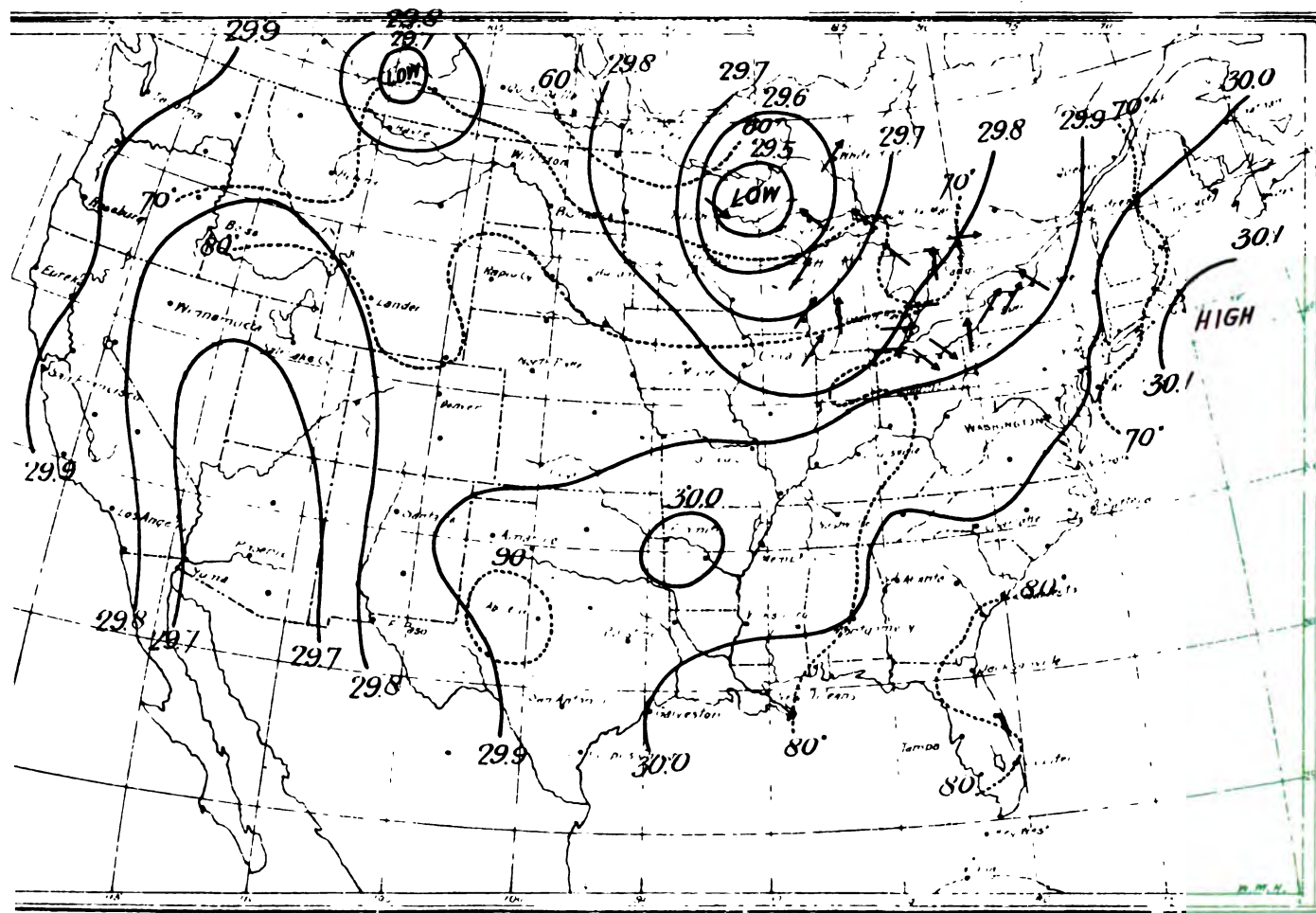


Chart CCCCIV.

July 18, 1898—8 a. m.

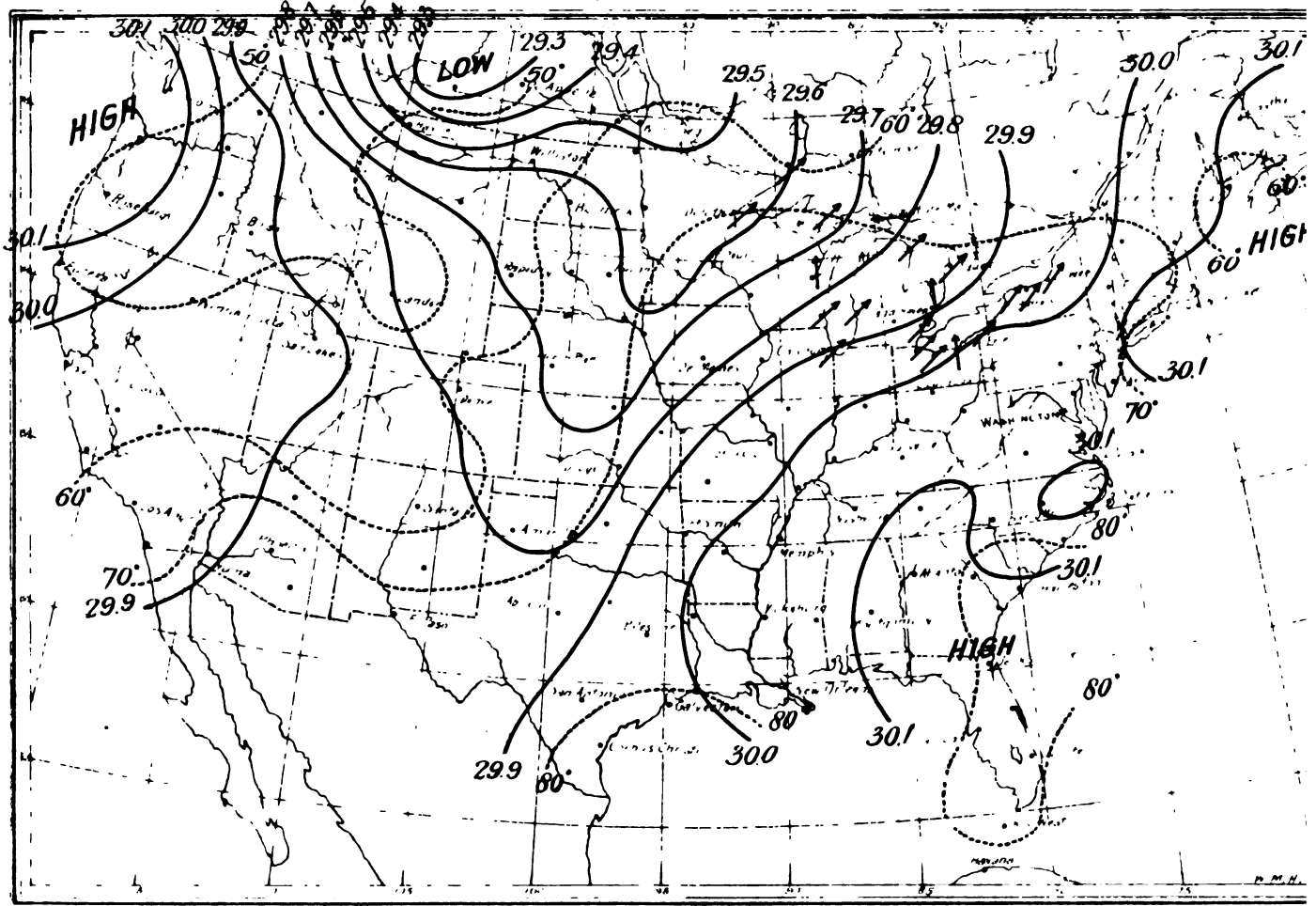
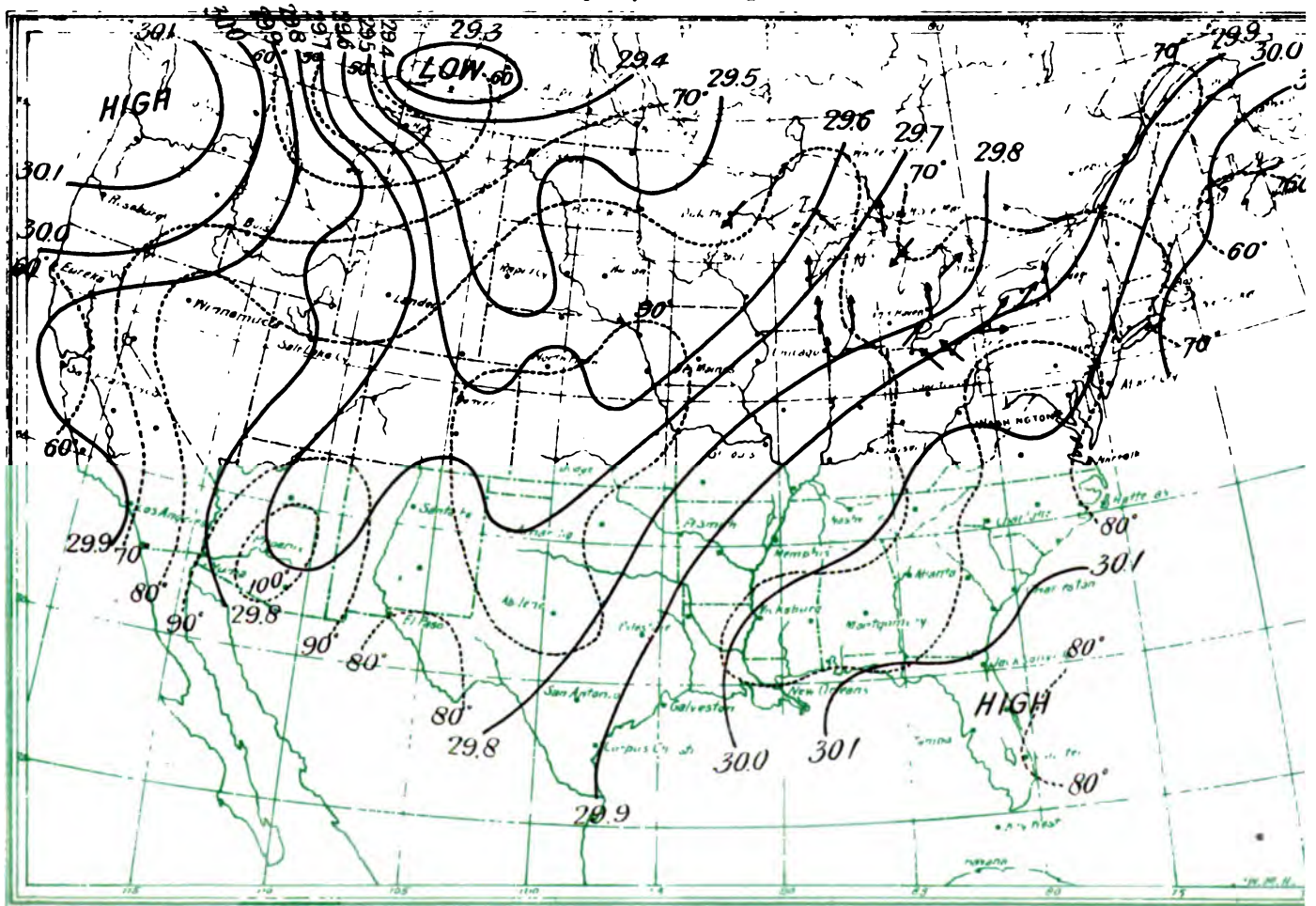


Chart CCCCIV.

July 18, 1898—8 p. m.



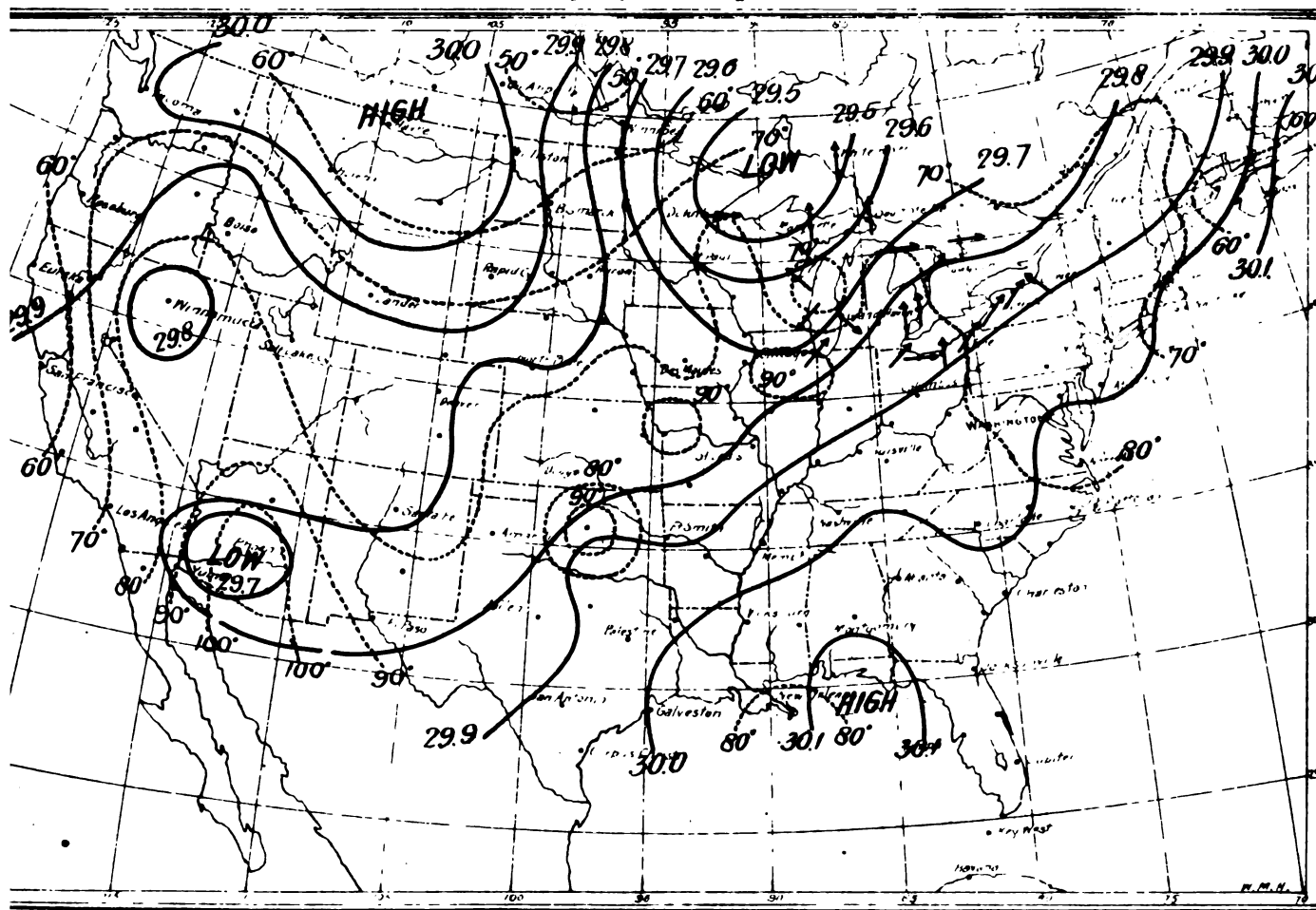
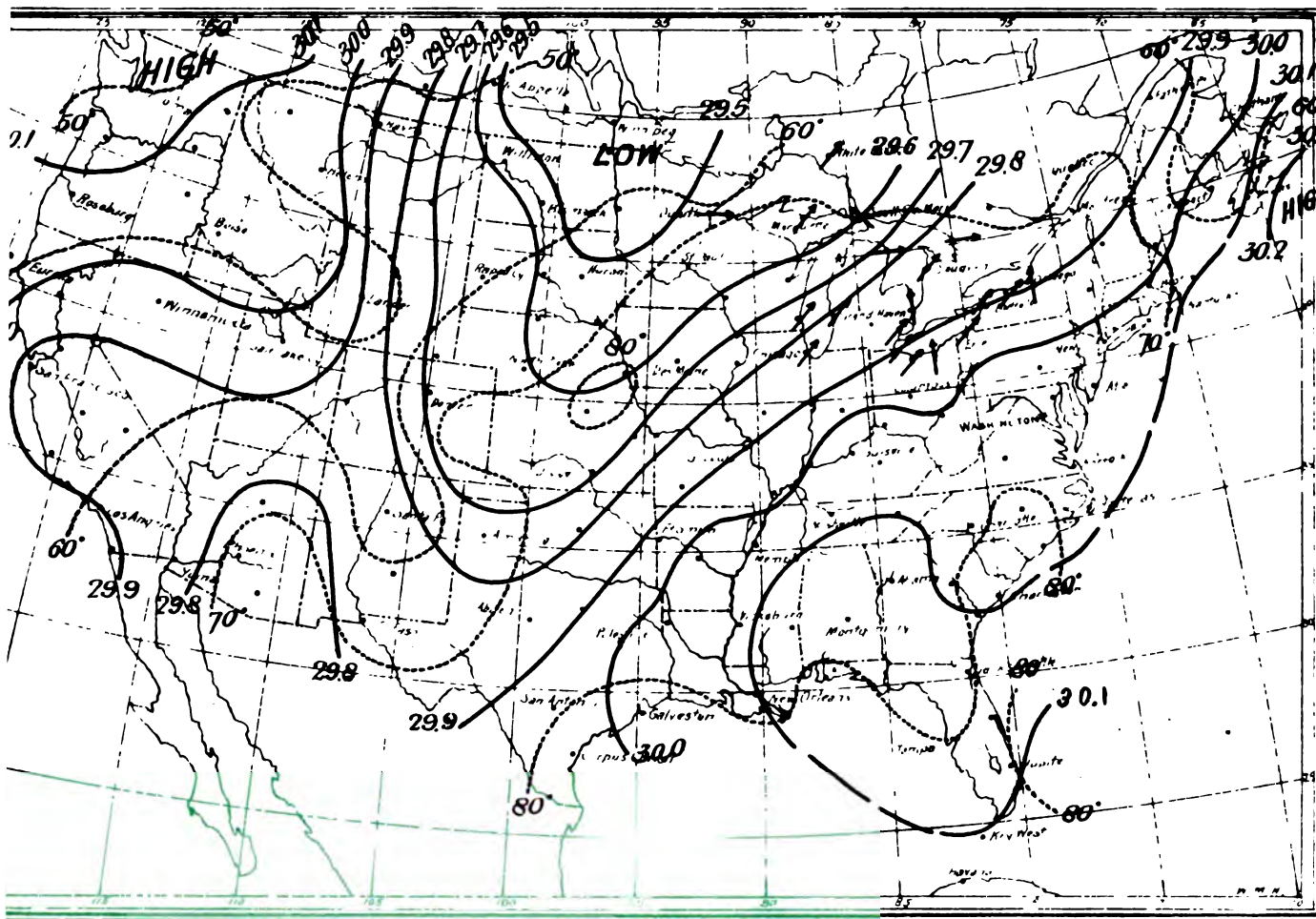


Chart CCCCCIX.

August 12, 1878—4:35 p. m.

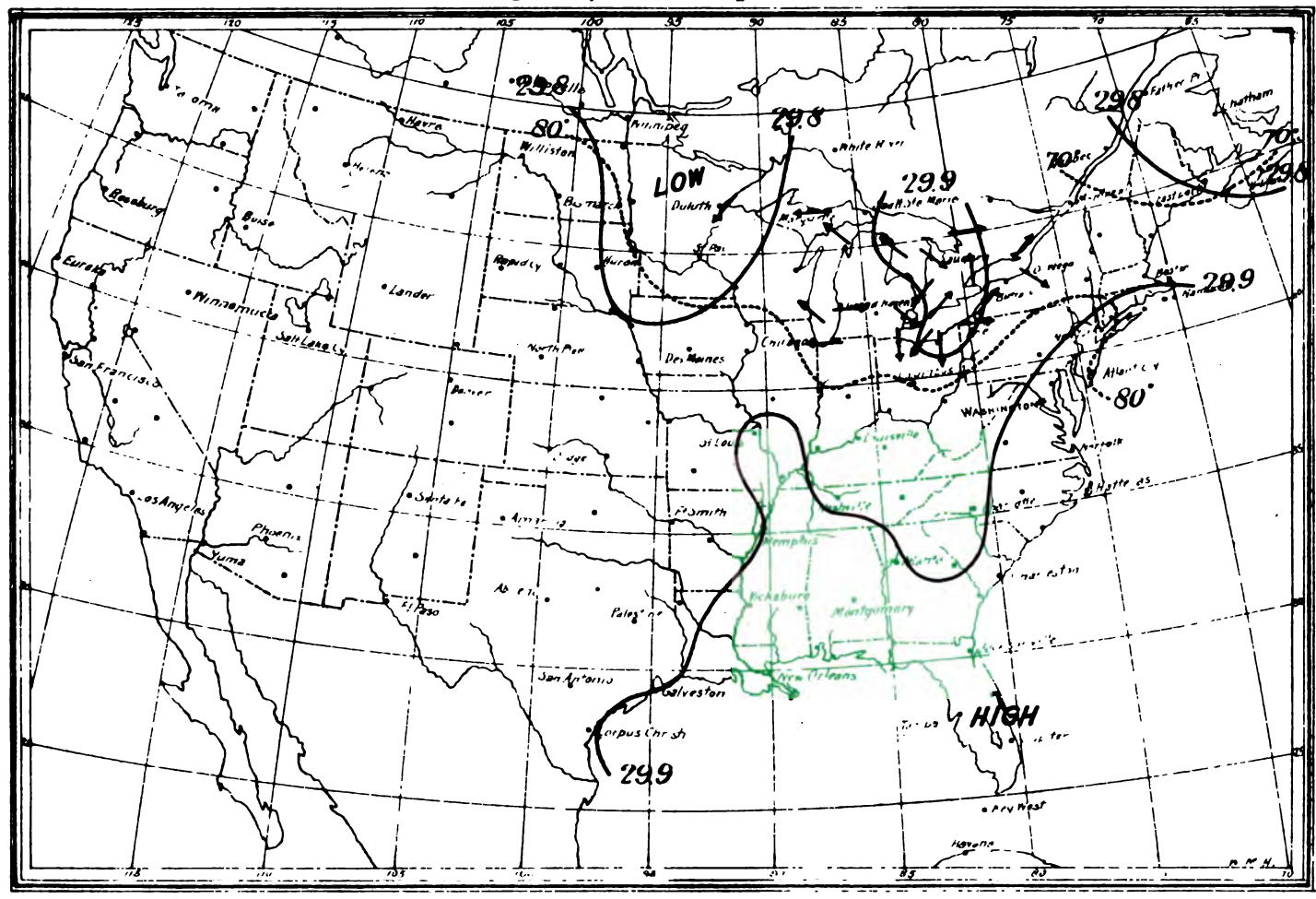
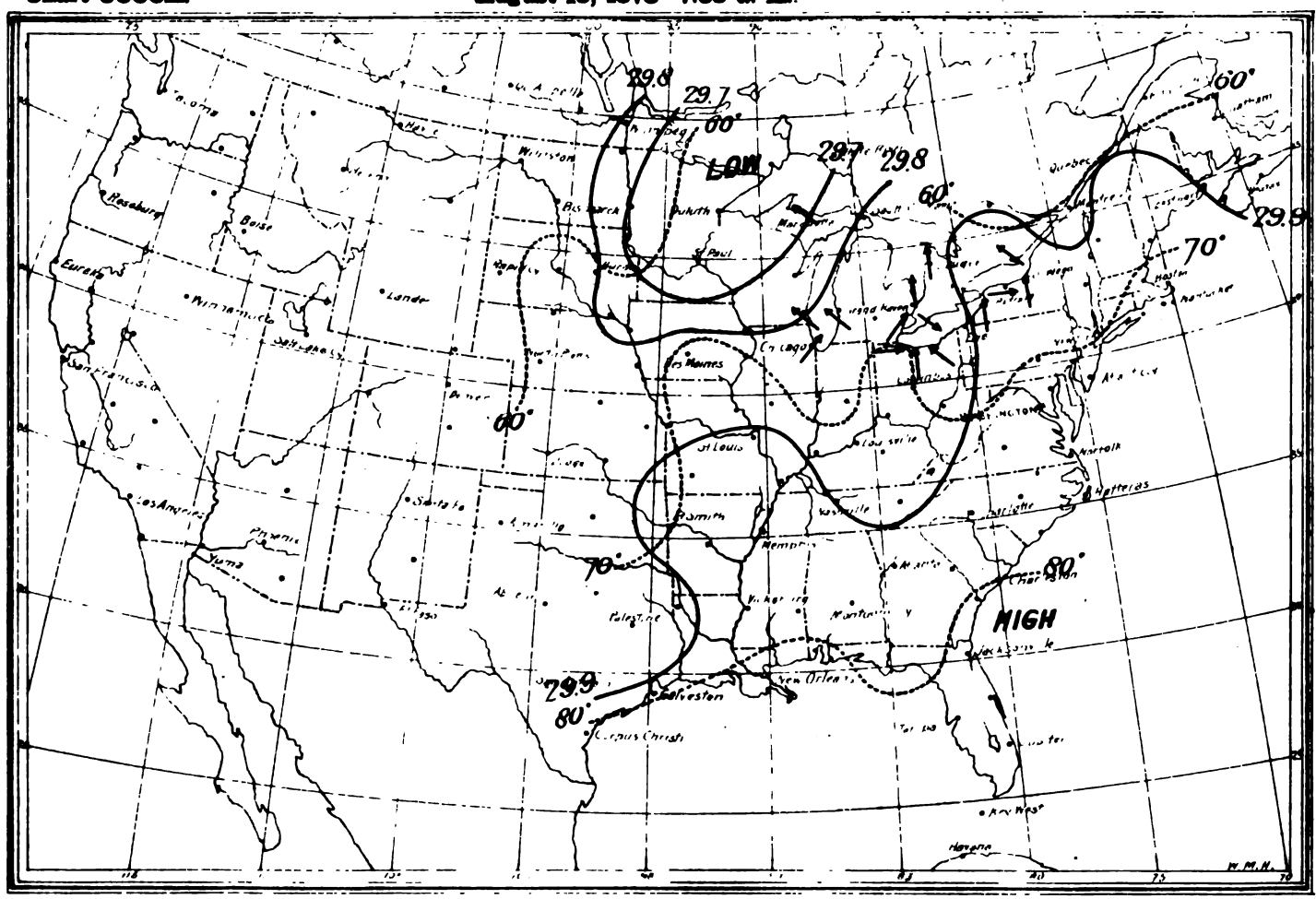


Chart CCCCCX.

August 13, 1878—7:35 a. m.



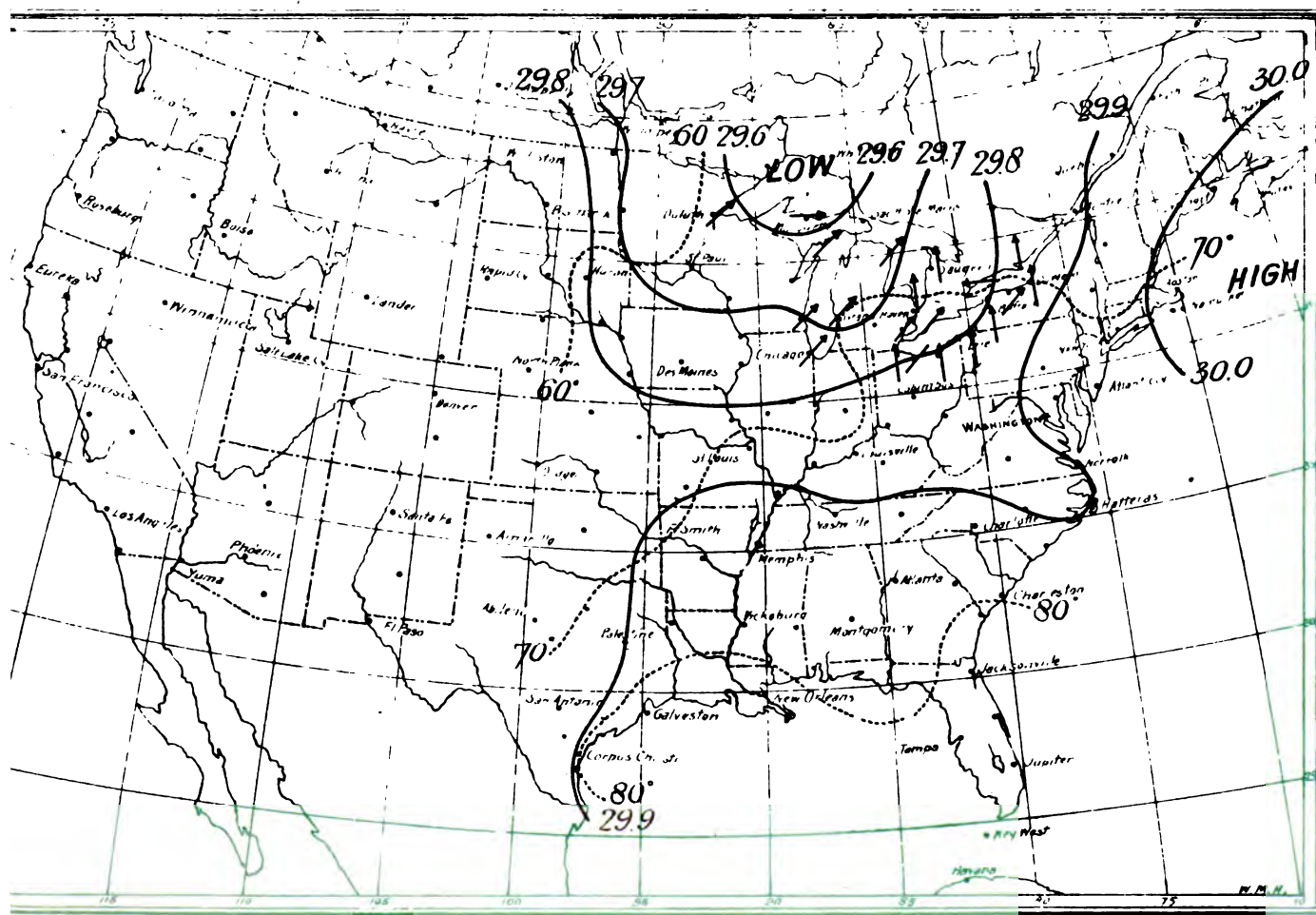
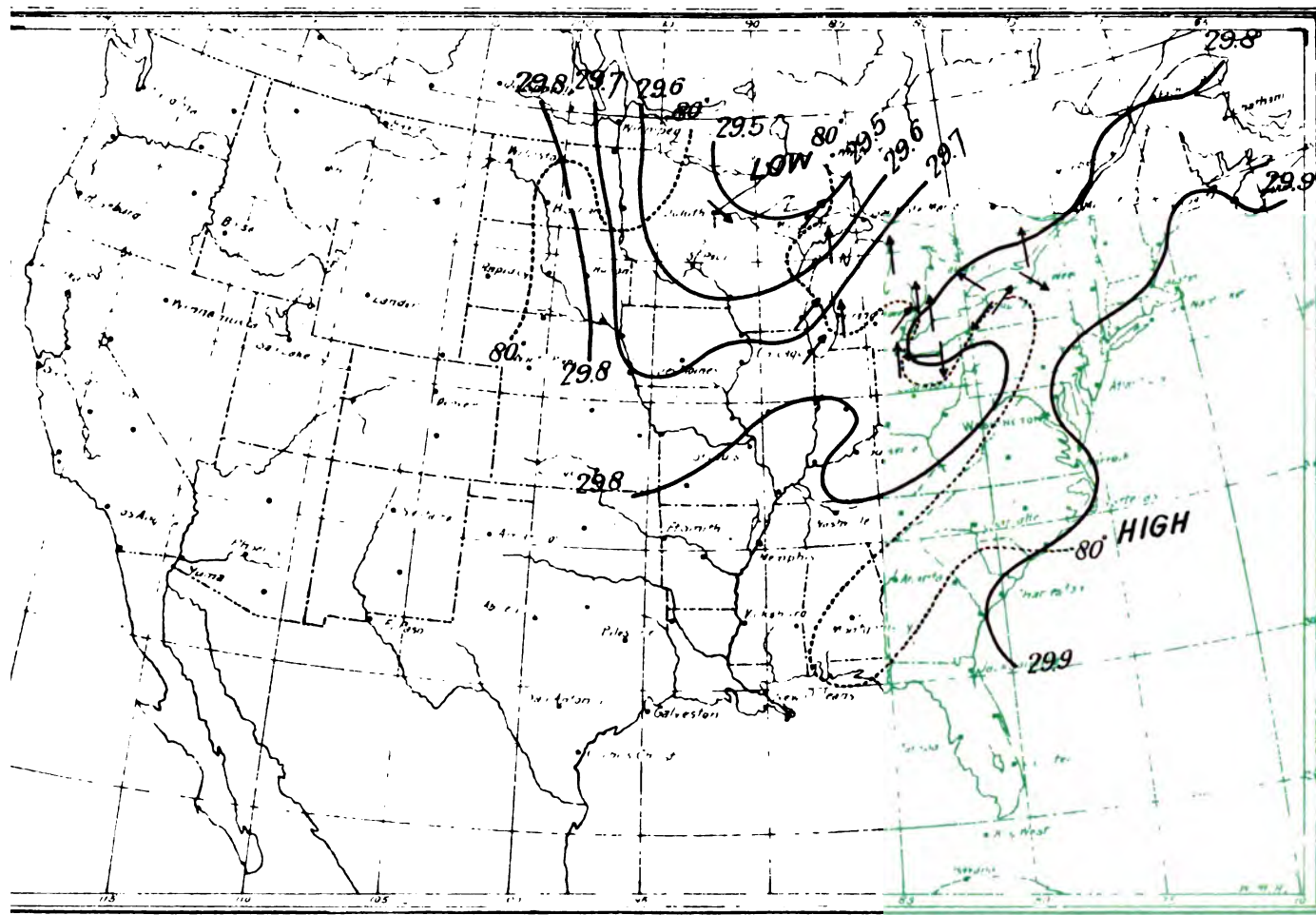


Chart CCCCXIII.

August 21, 1883—7 a. m.

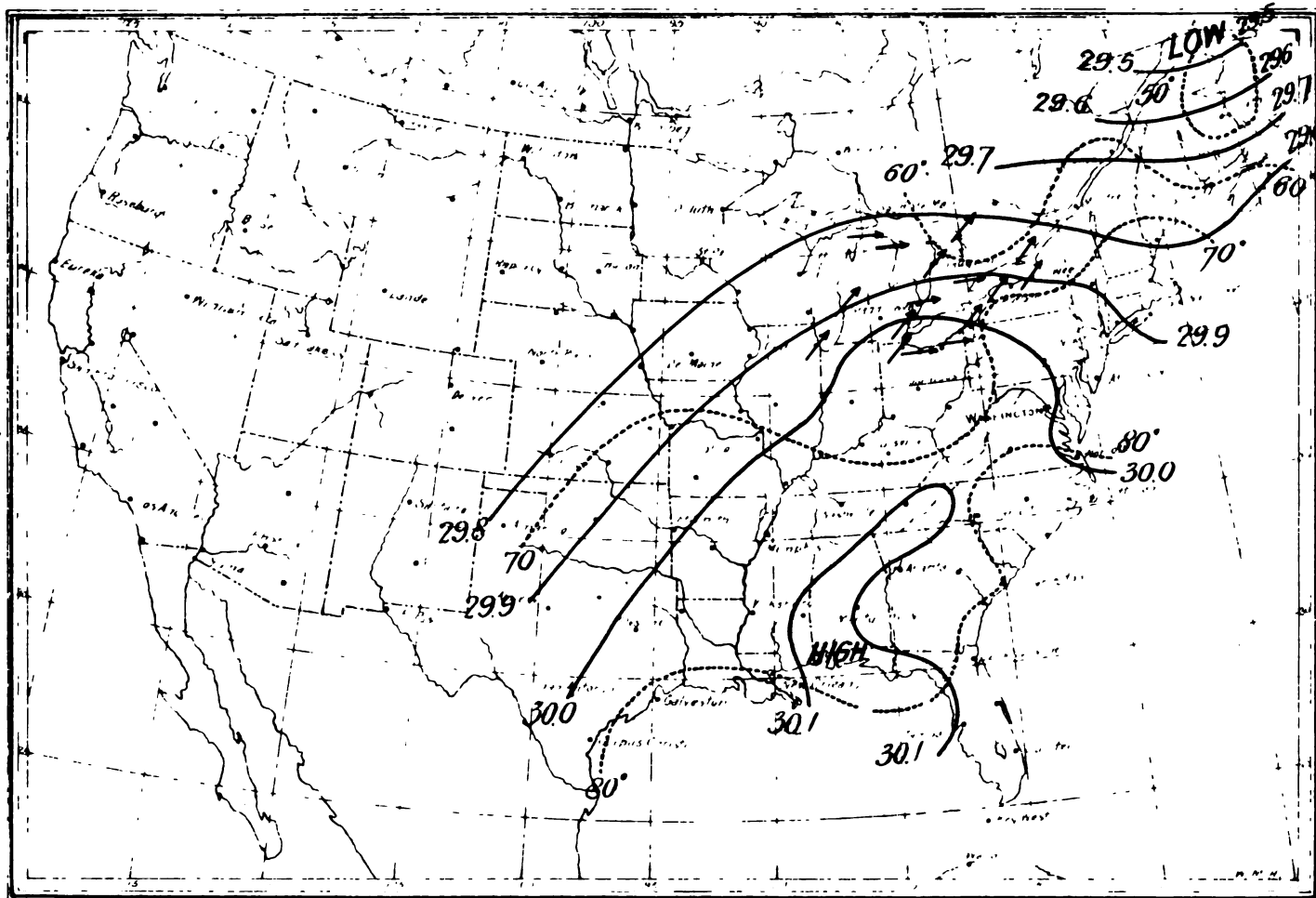


Chart CCCCXIV.

August 21, 1883—3 p. m.

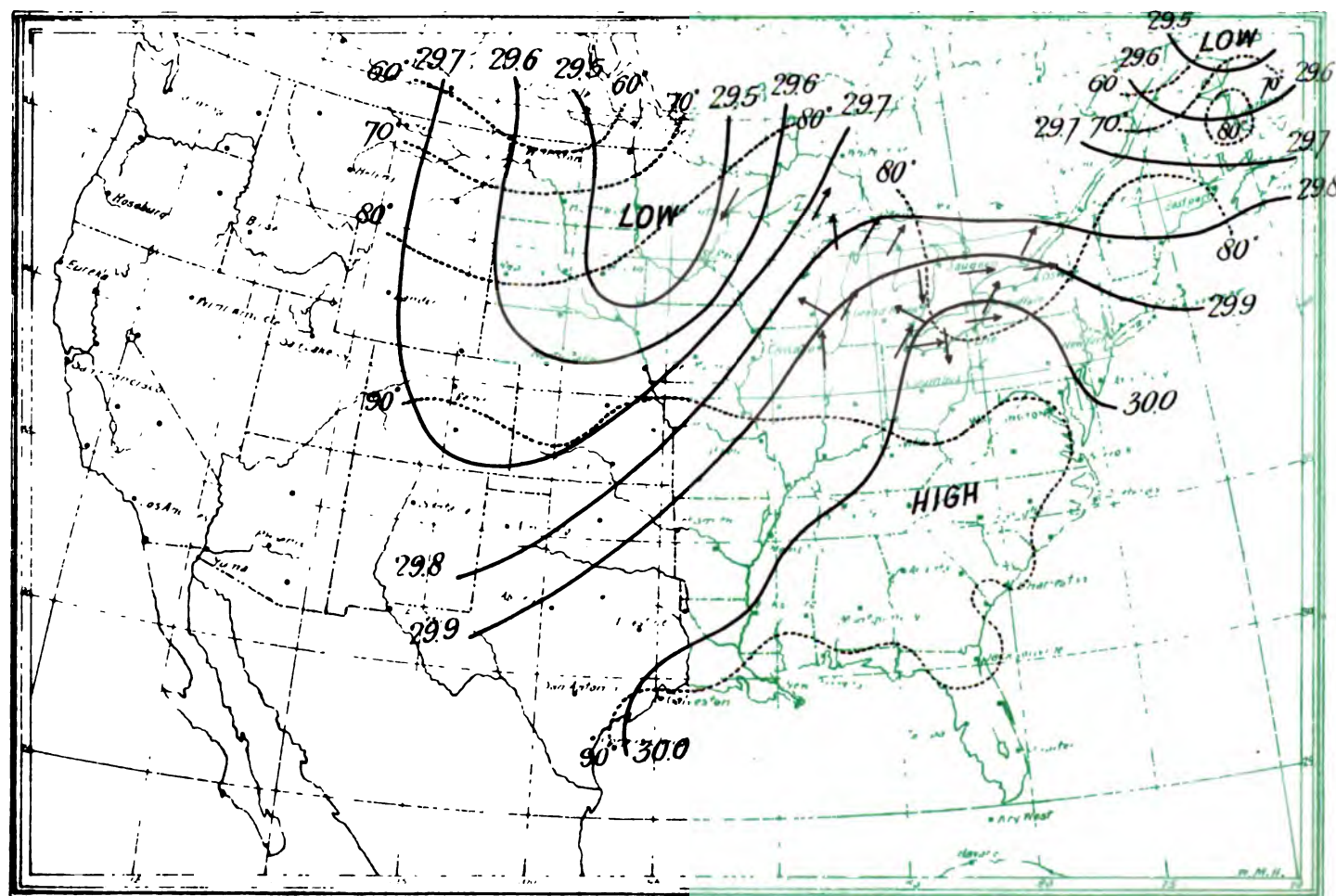


Chart 0000XV.

August 22, 1888—7 a. m.

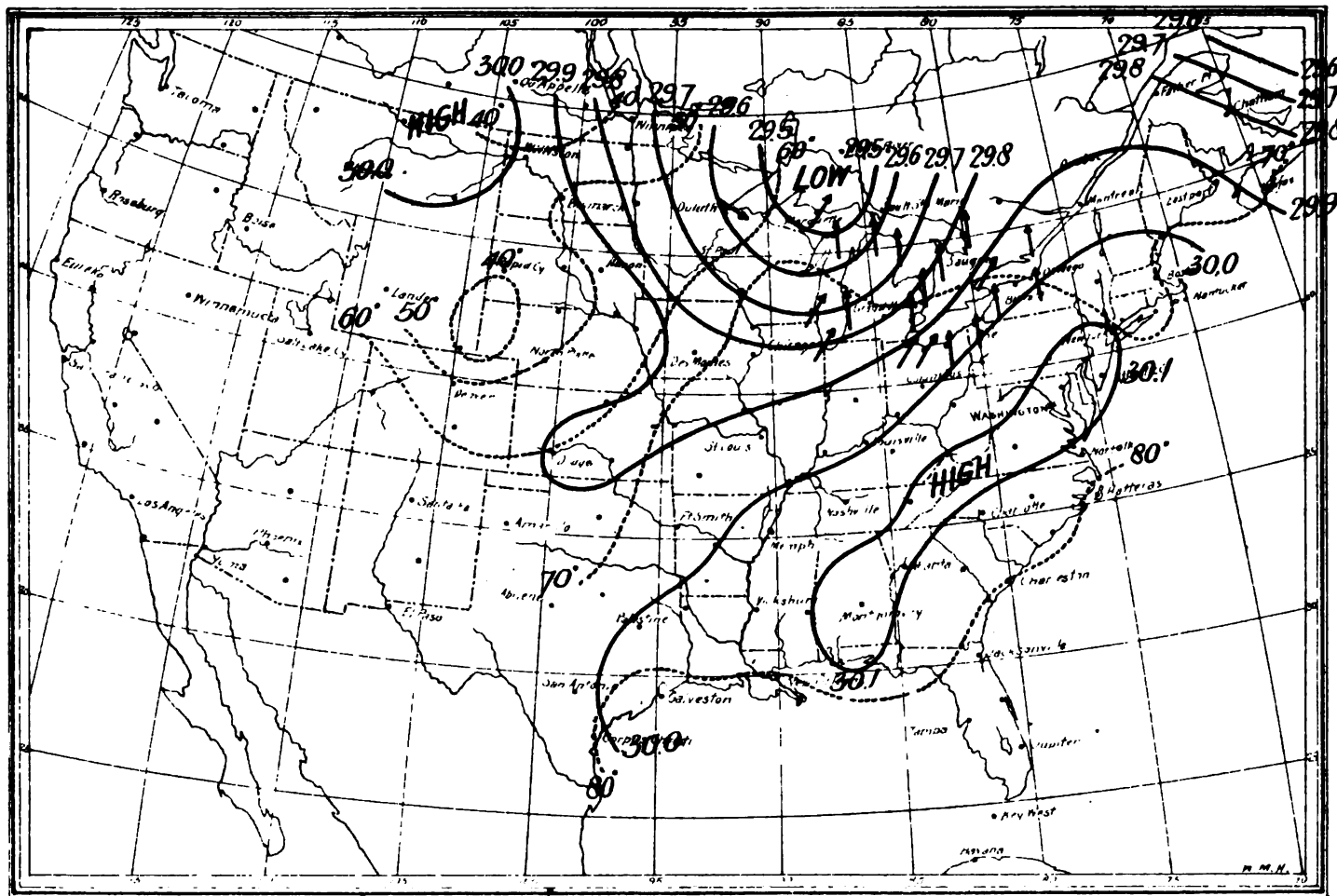


Chart 0000XVI.

August 22, 1888—3 p. m.

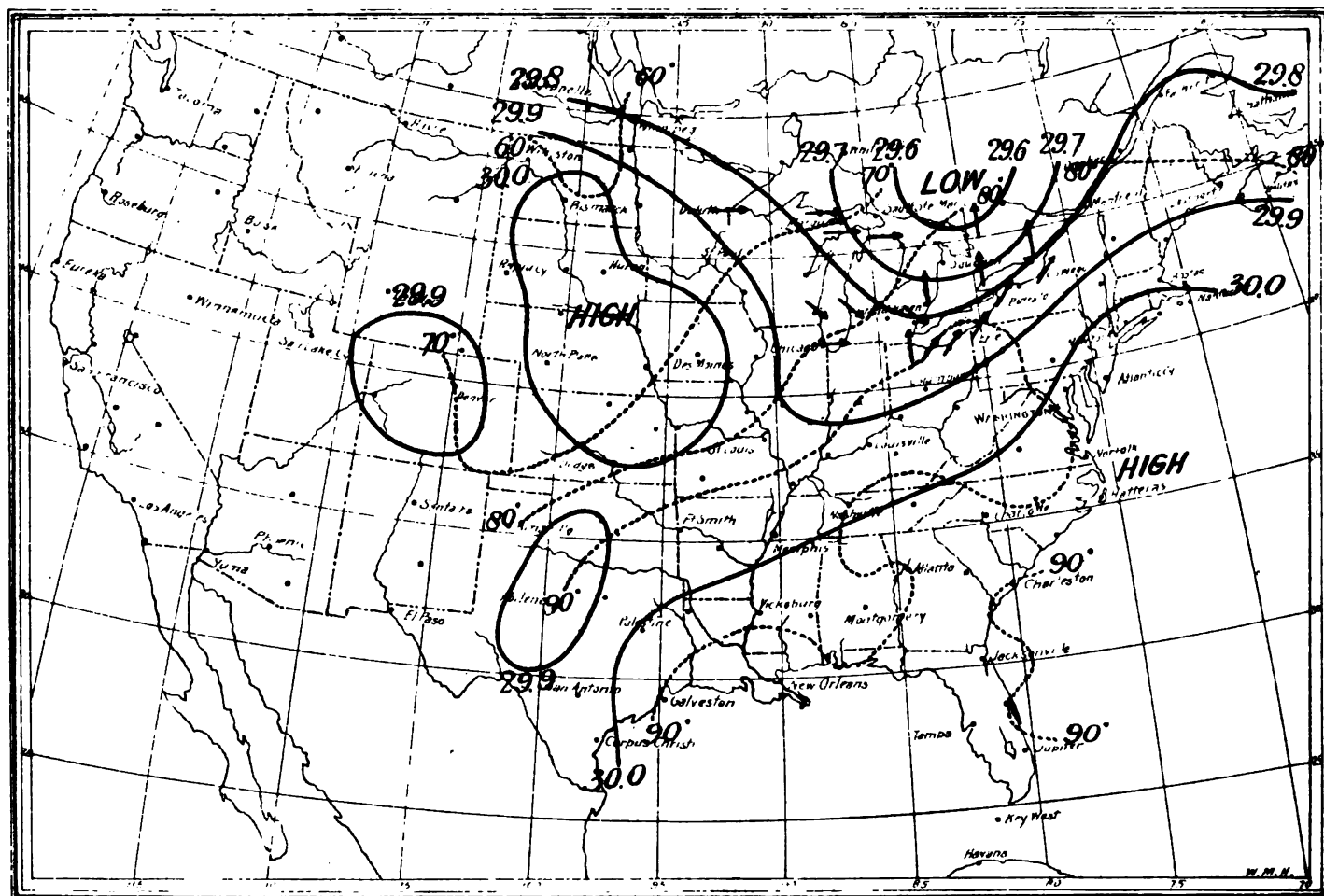


Chart CCCCXVII.

August 1, 1885—3 p. m.

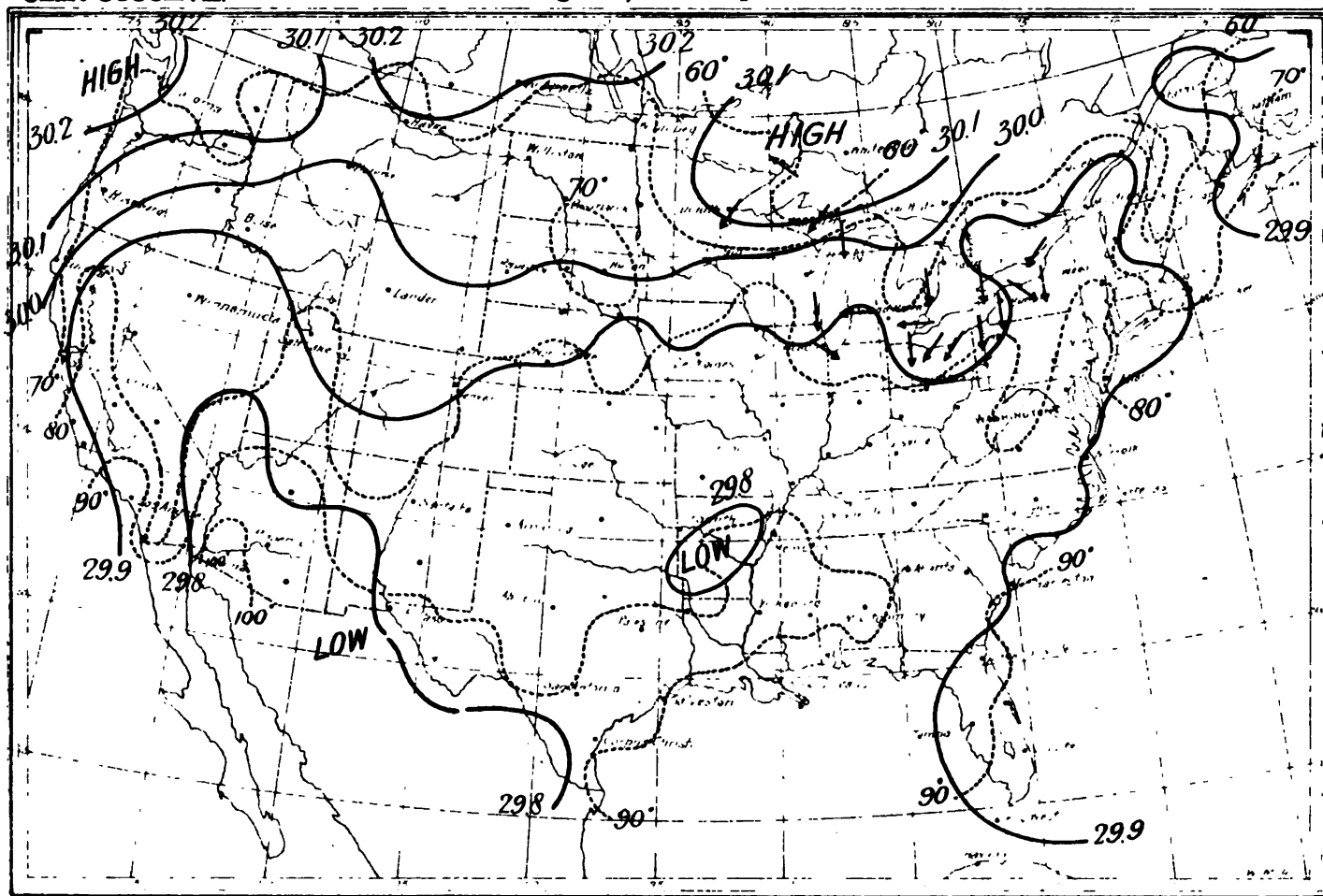


Chart CCCCXVIII.

August 2, 1885—7 a. m.

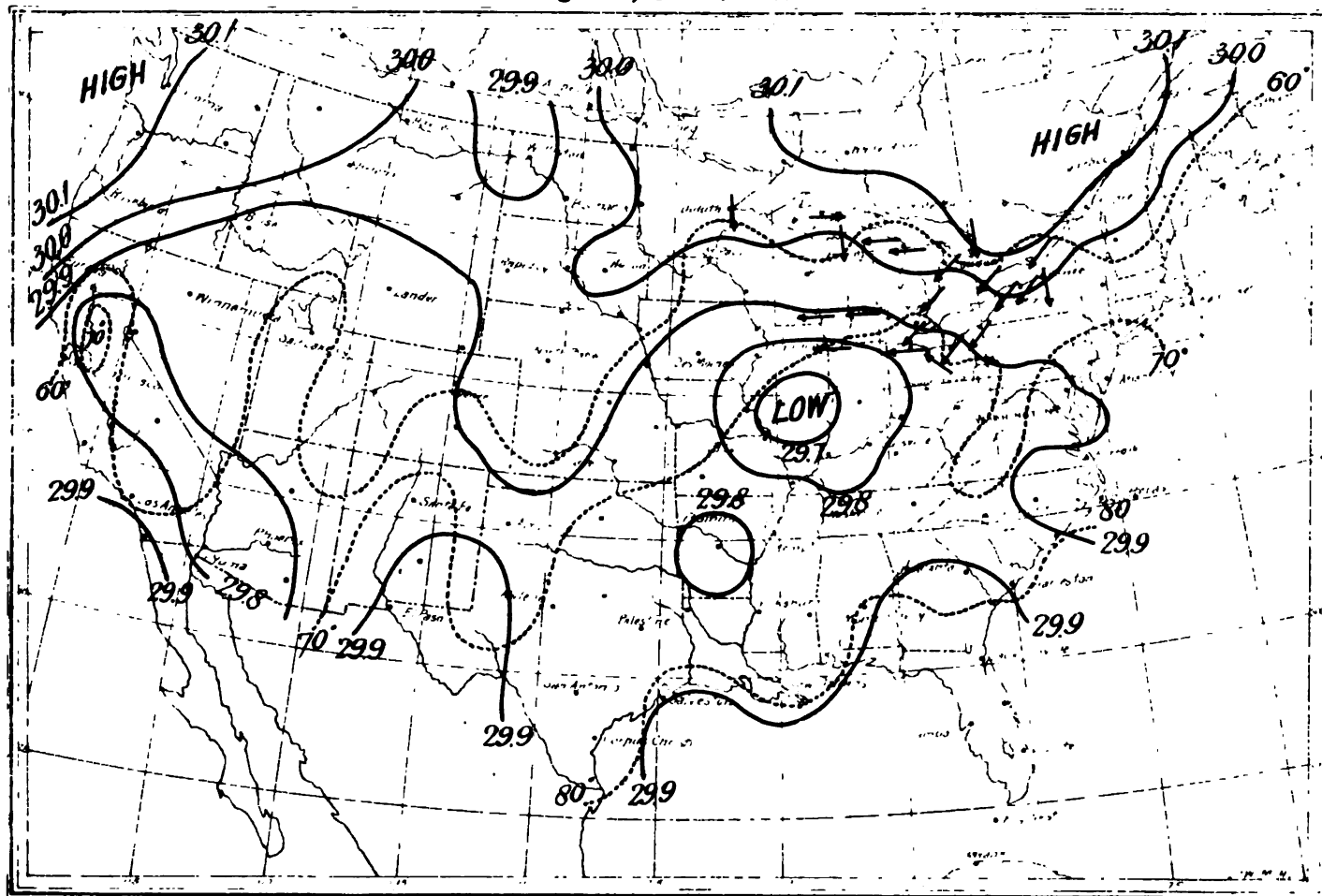


Chart CCCCXIX.

August 2, 1885—3 p. m.

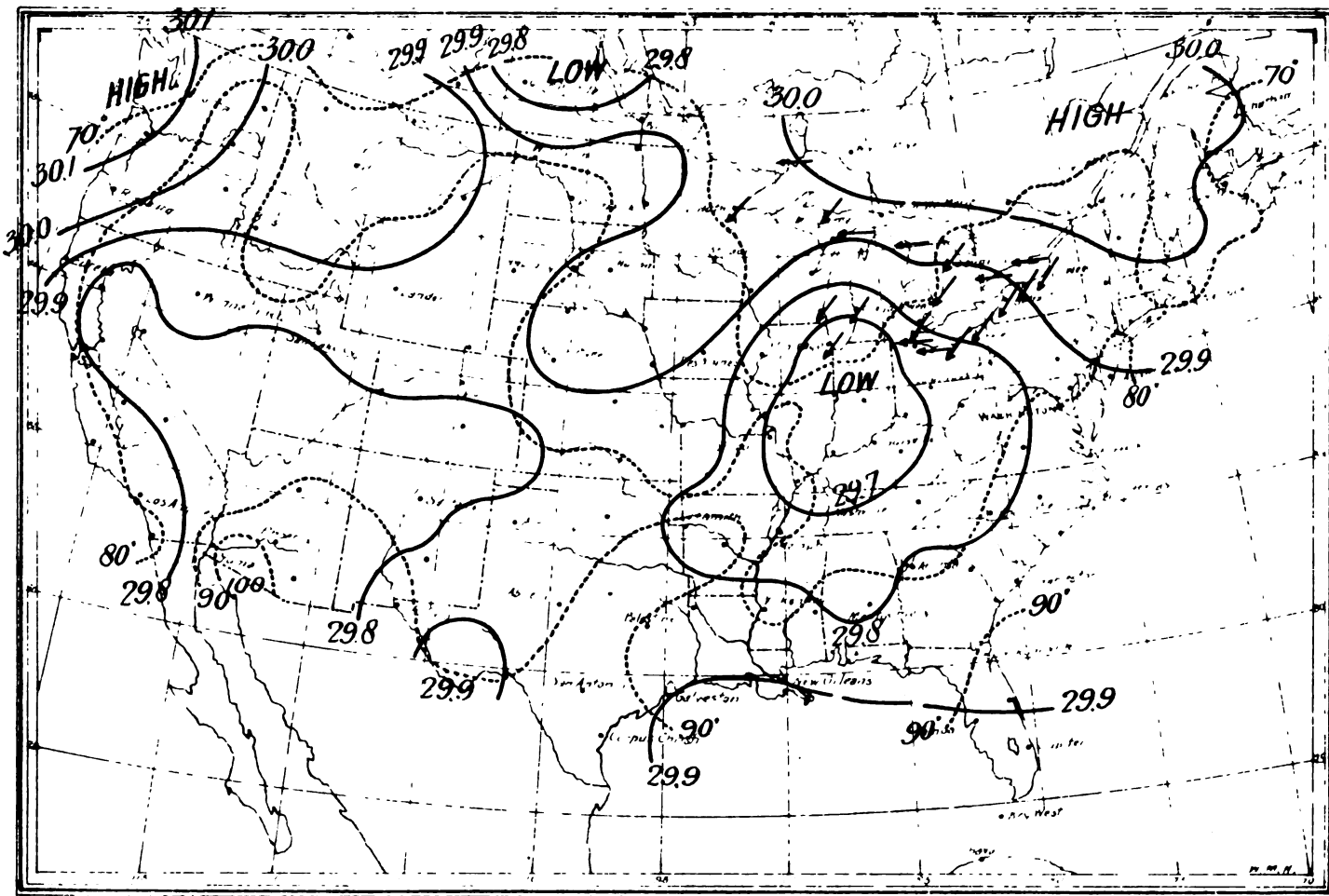


Chart CCCCCX.

August 3, 1885—7 a. m.

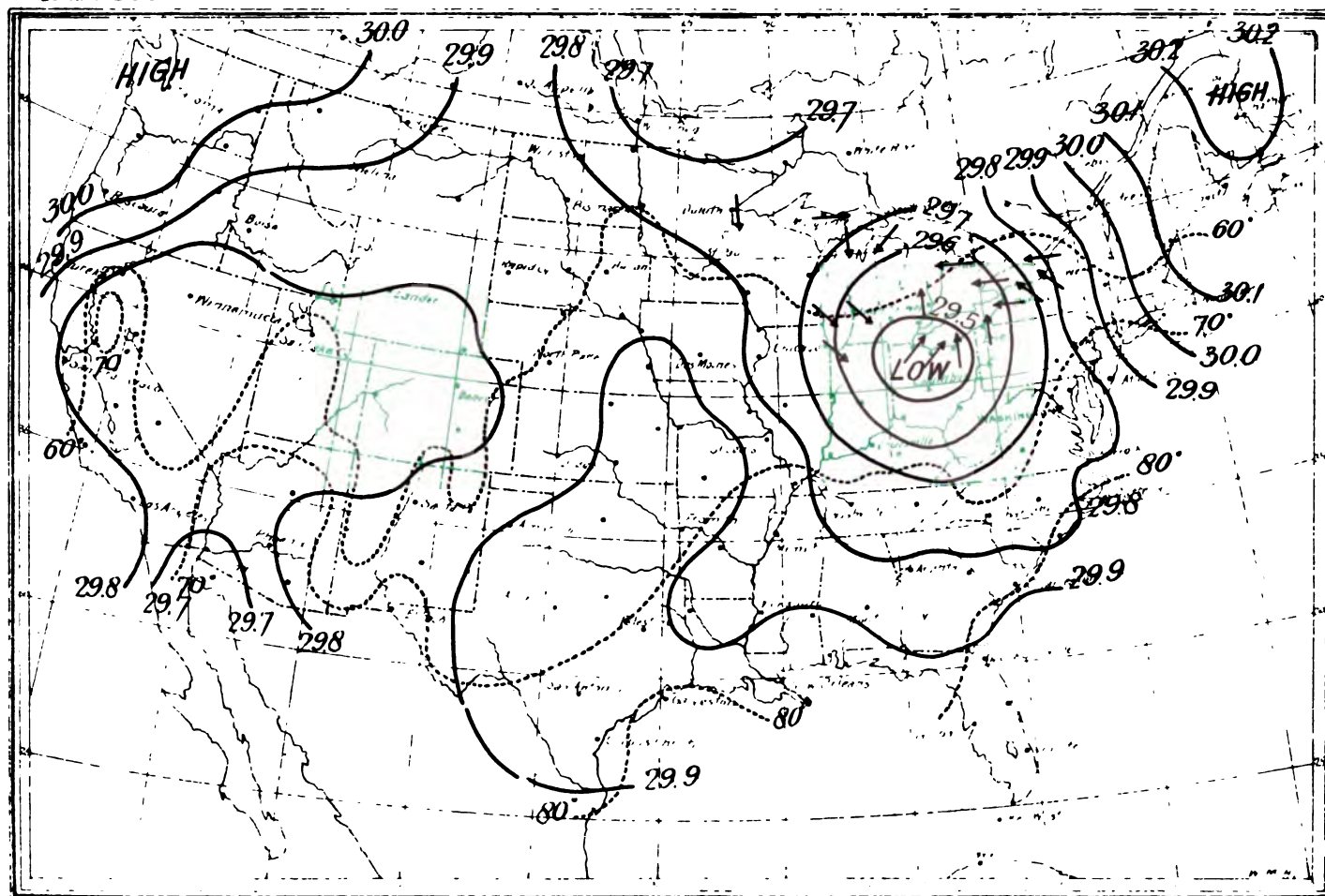


Chart CCCCXXI.

August 20, 1885—7 a. m.

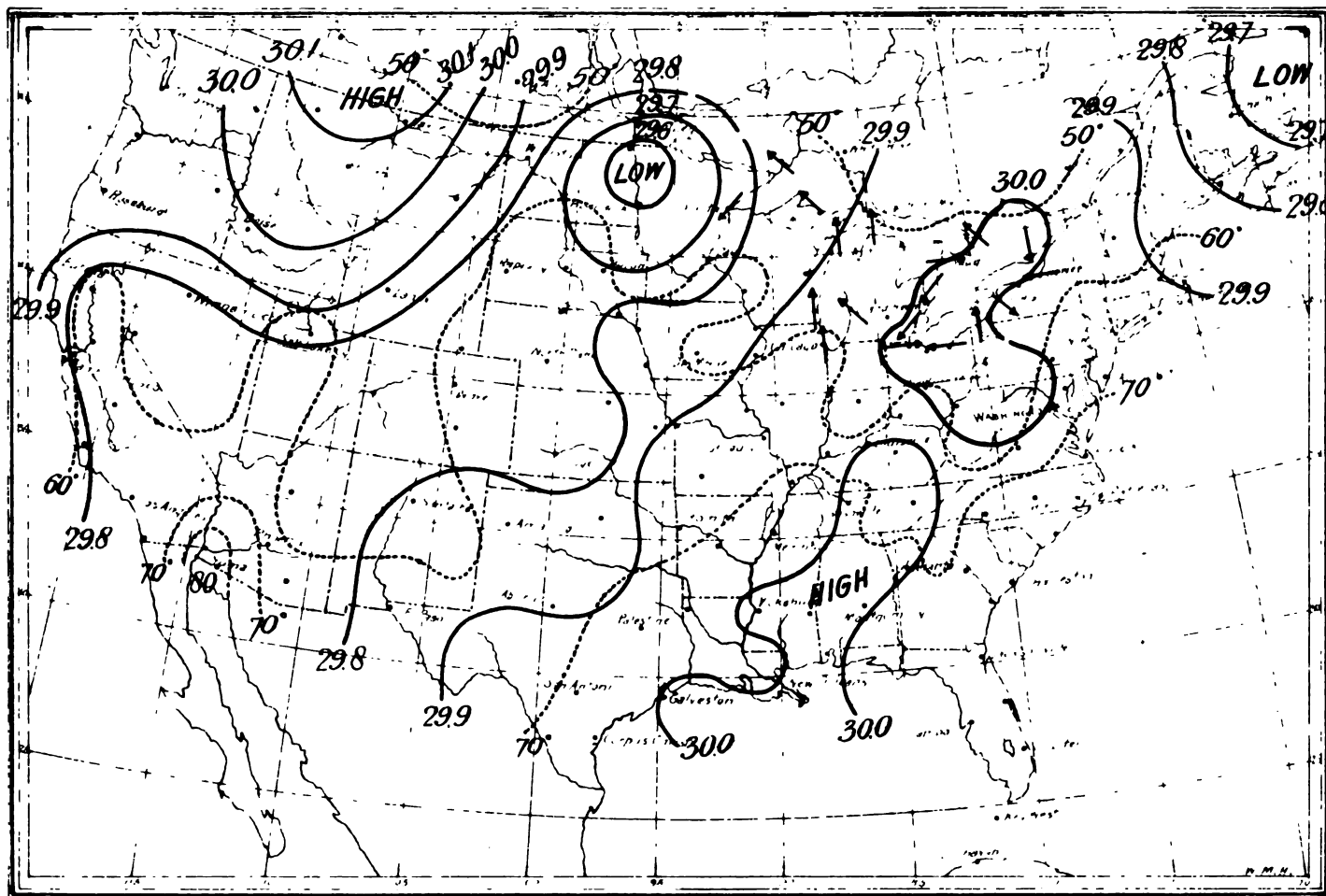


Chart CCCCXXII.

August 20, 1885—8 p. m.

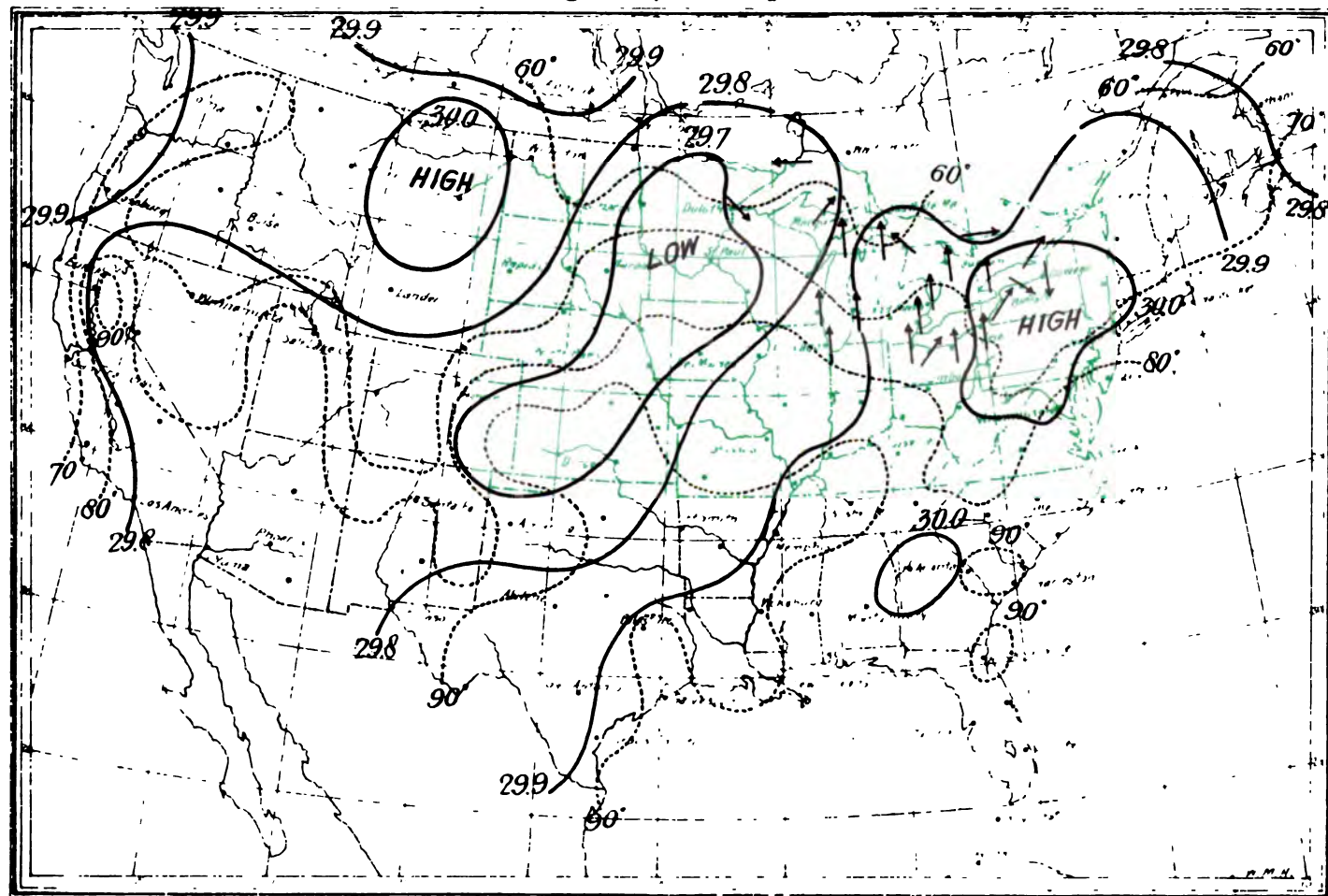


Chart CCCCXXIII.

August 21, 1885—7 a. m.

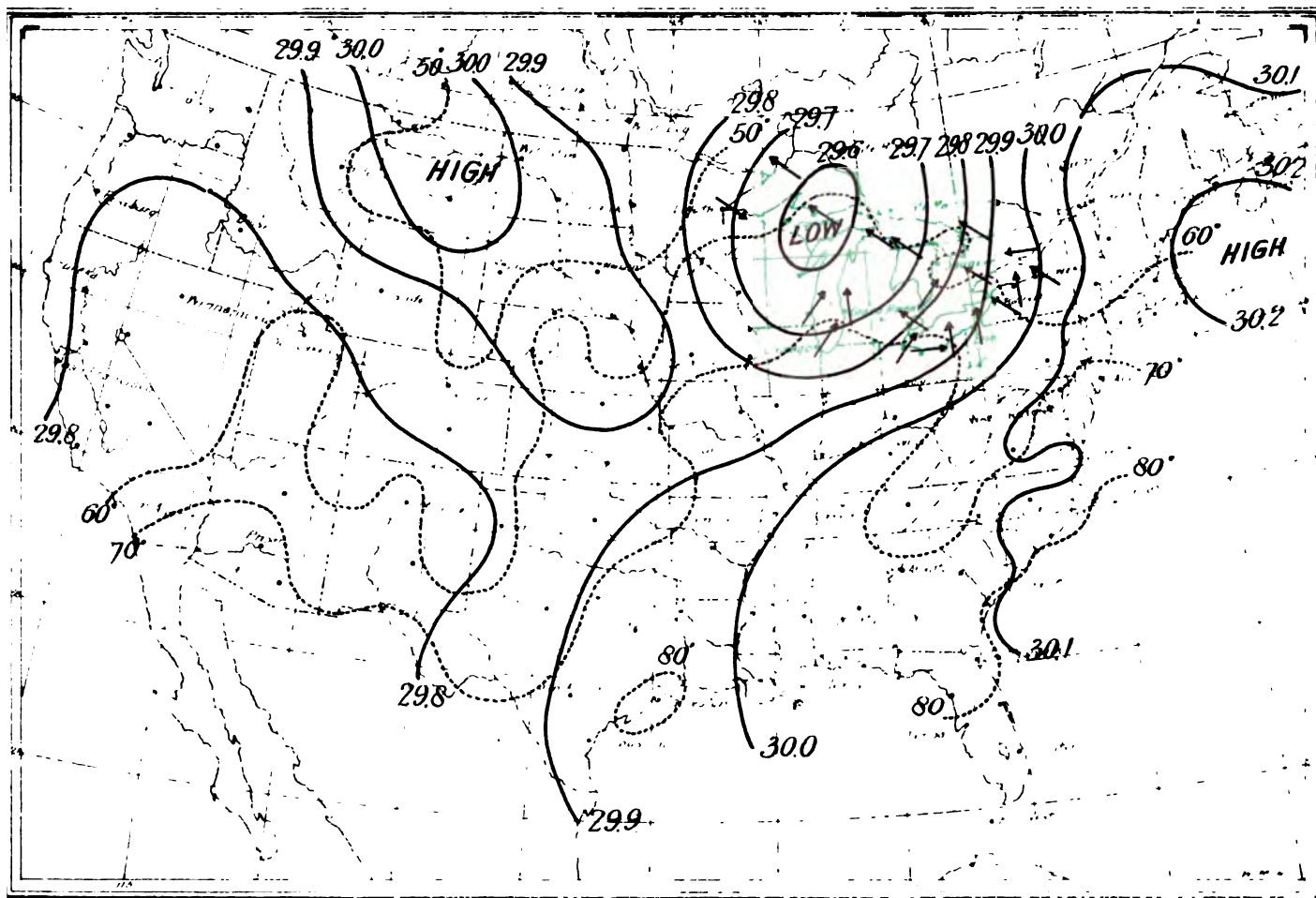


Chart CCCCXXIV.

August 21, 1885—3 p. m.

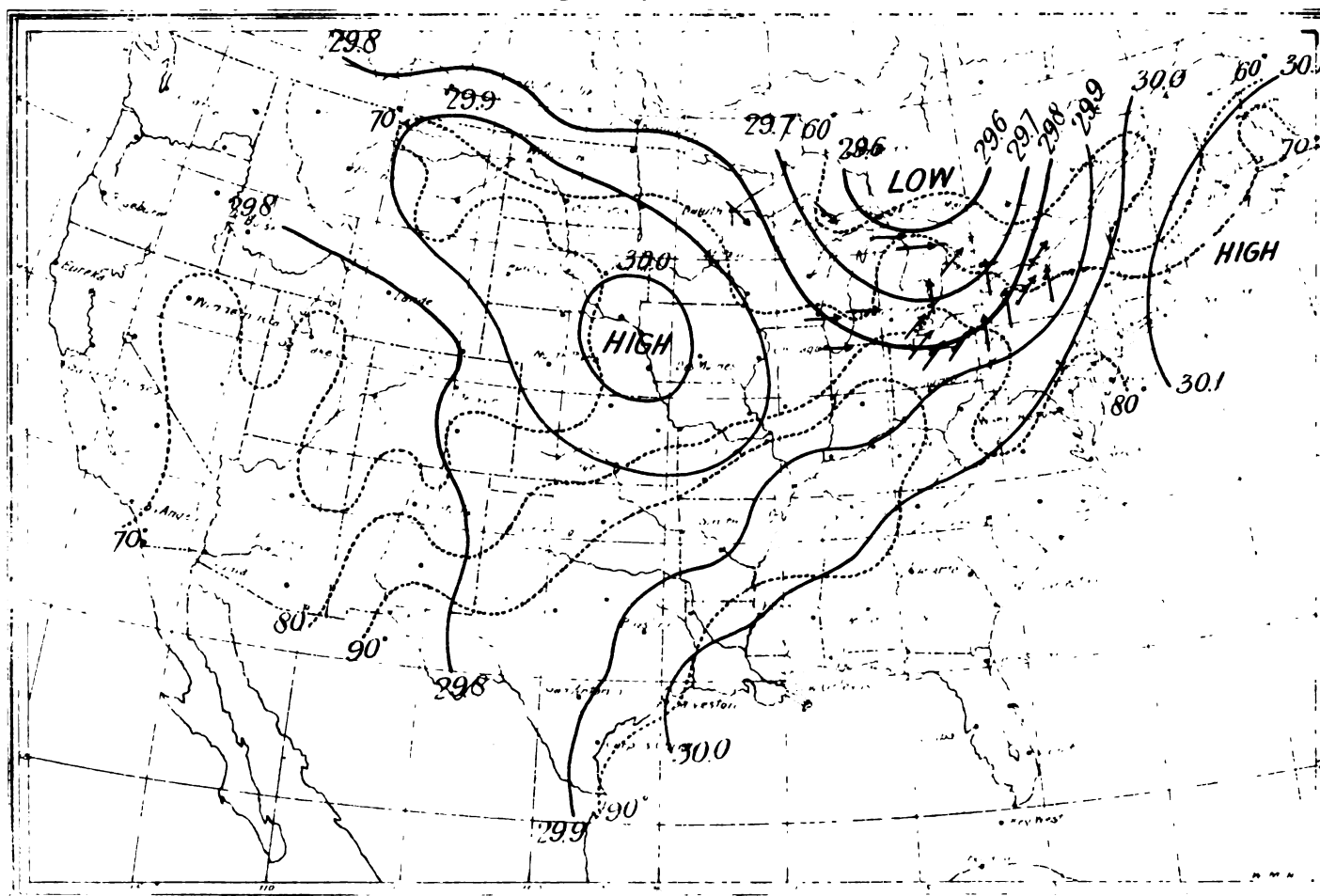


Chart OOOOXXV.

August 19, 1889—8 p. m.

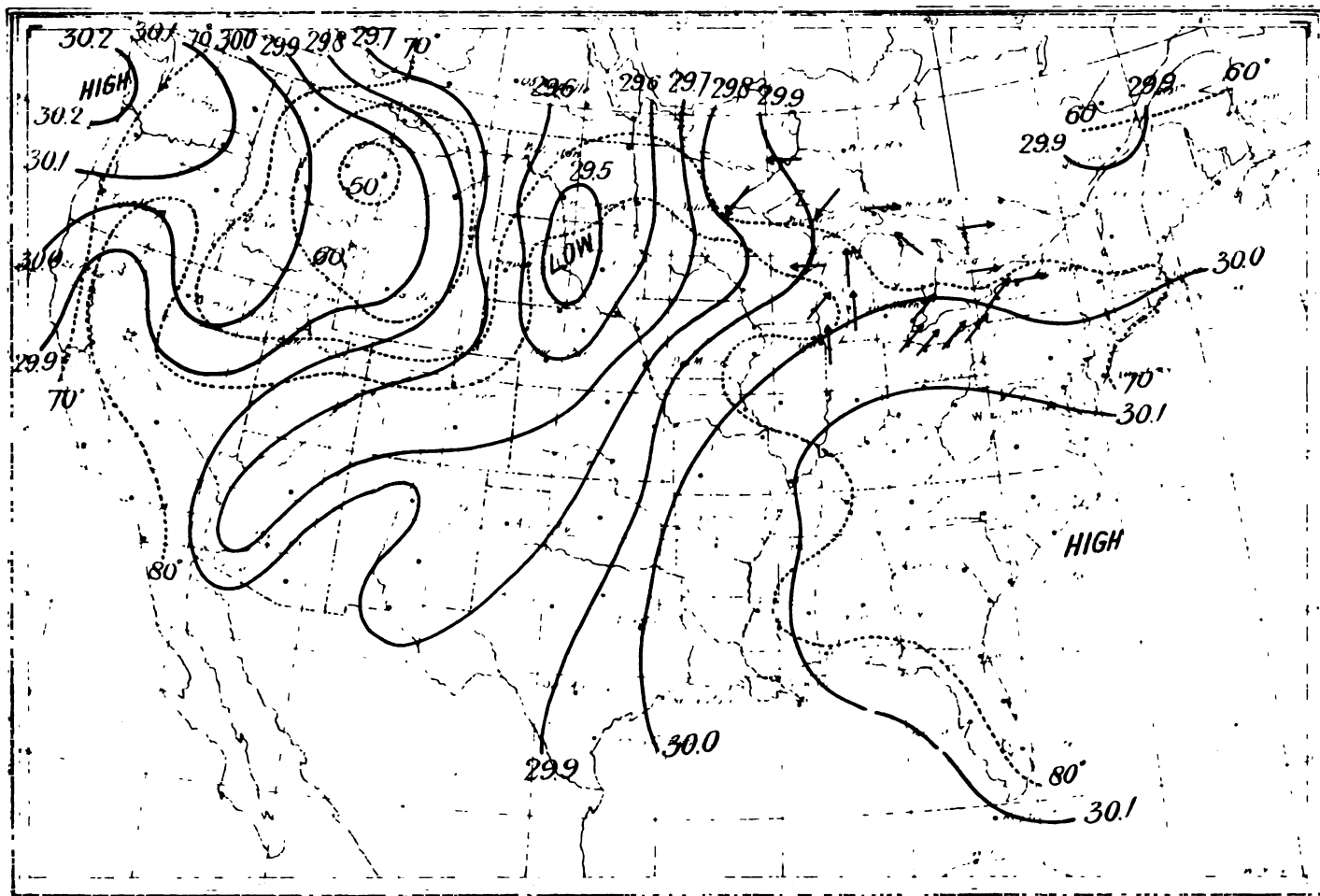


Chart OOOOXXVI.

August 20, 1889—8 a. m.

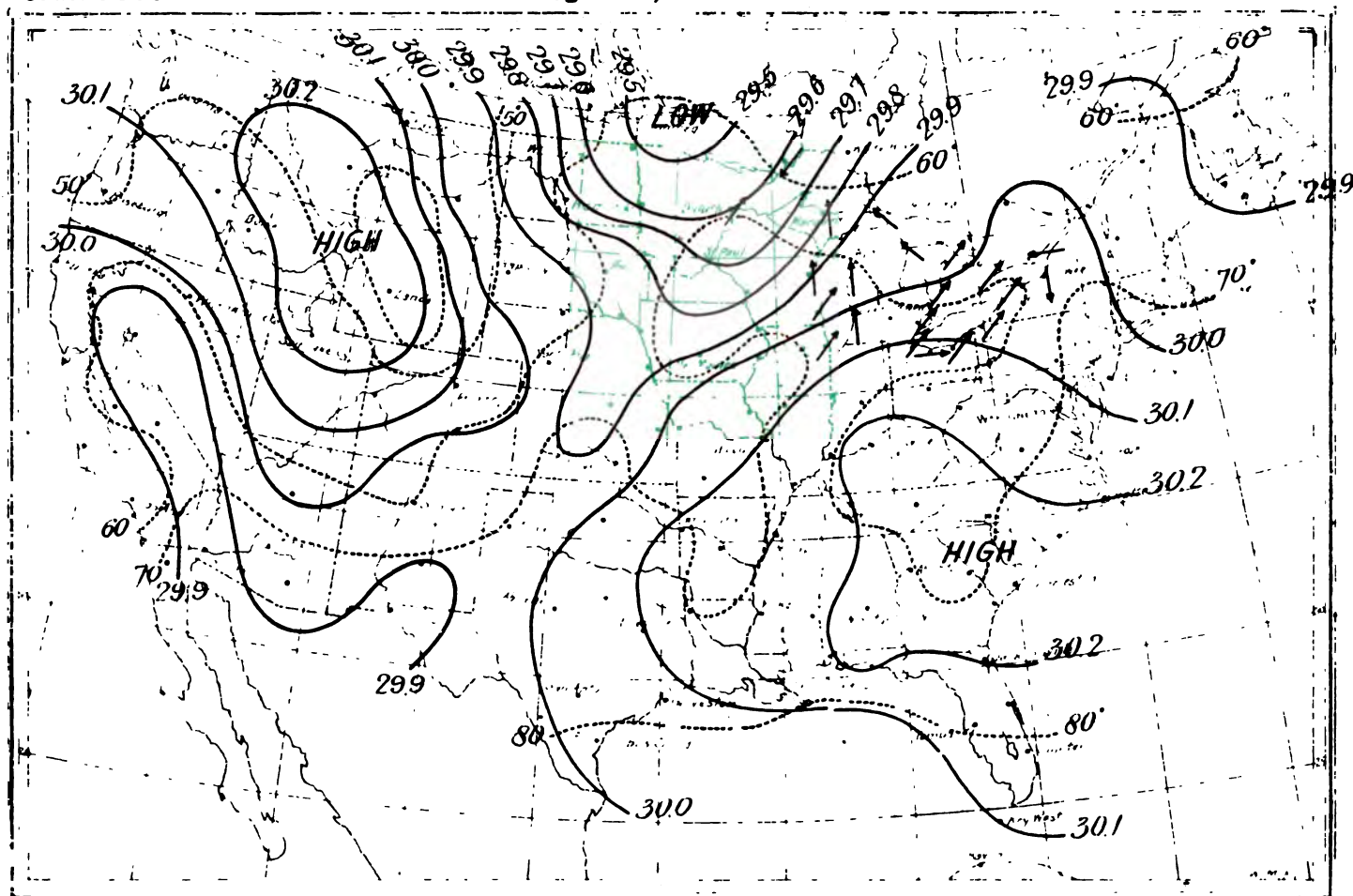


Chart CCCCXXVII.

August 20, 1889—8 p. m.

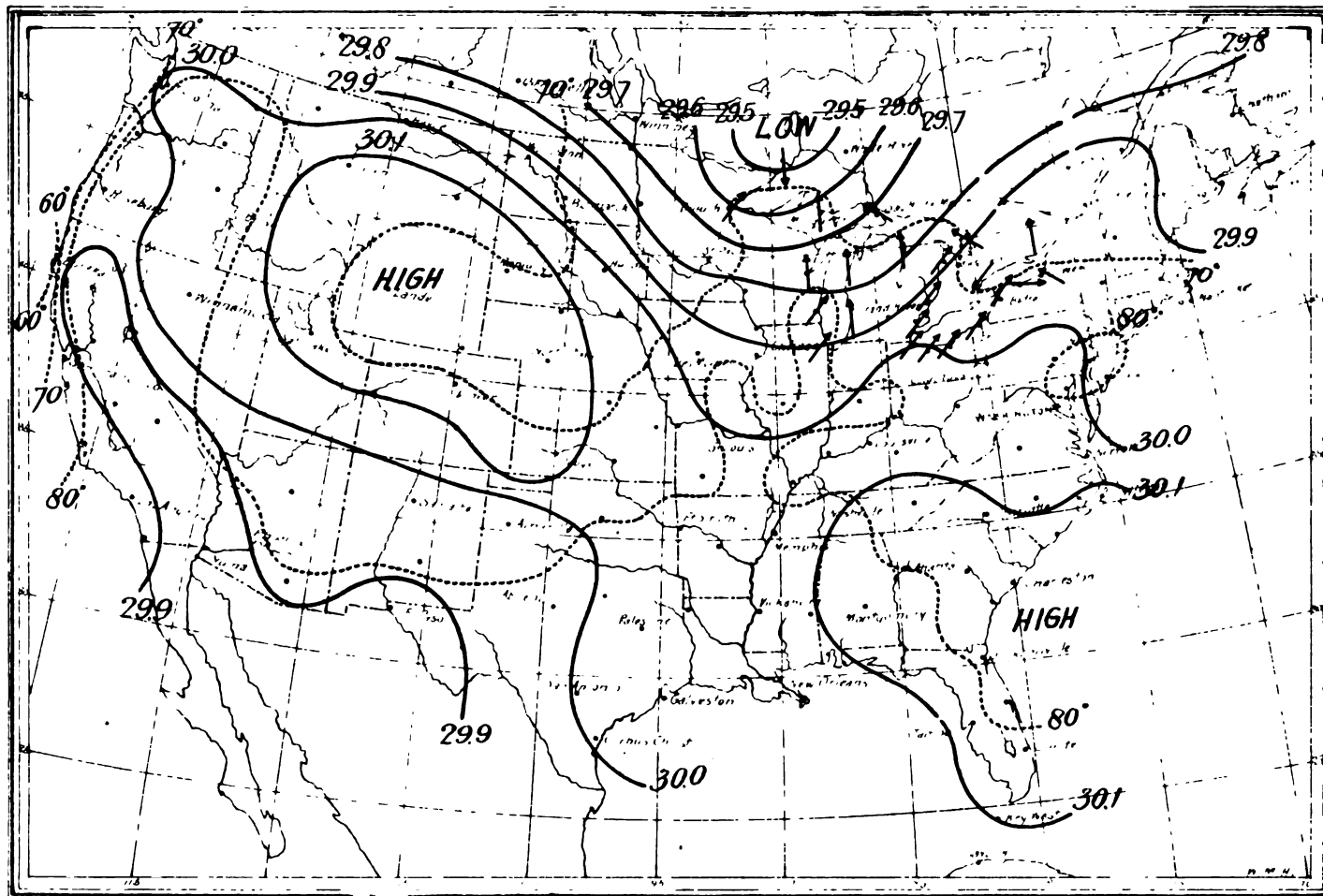


Chart CCCCXXVIII.

August 21, 1889—8 a. m.

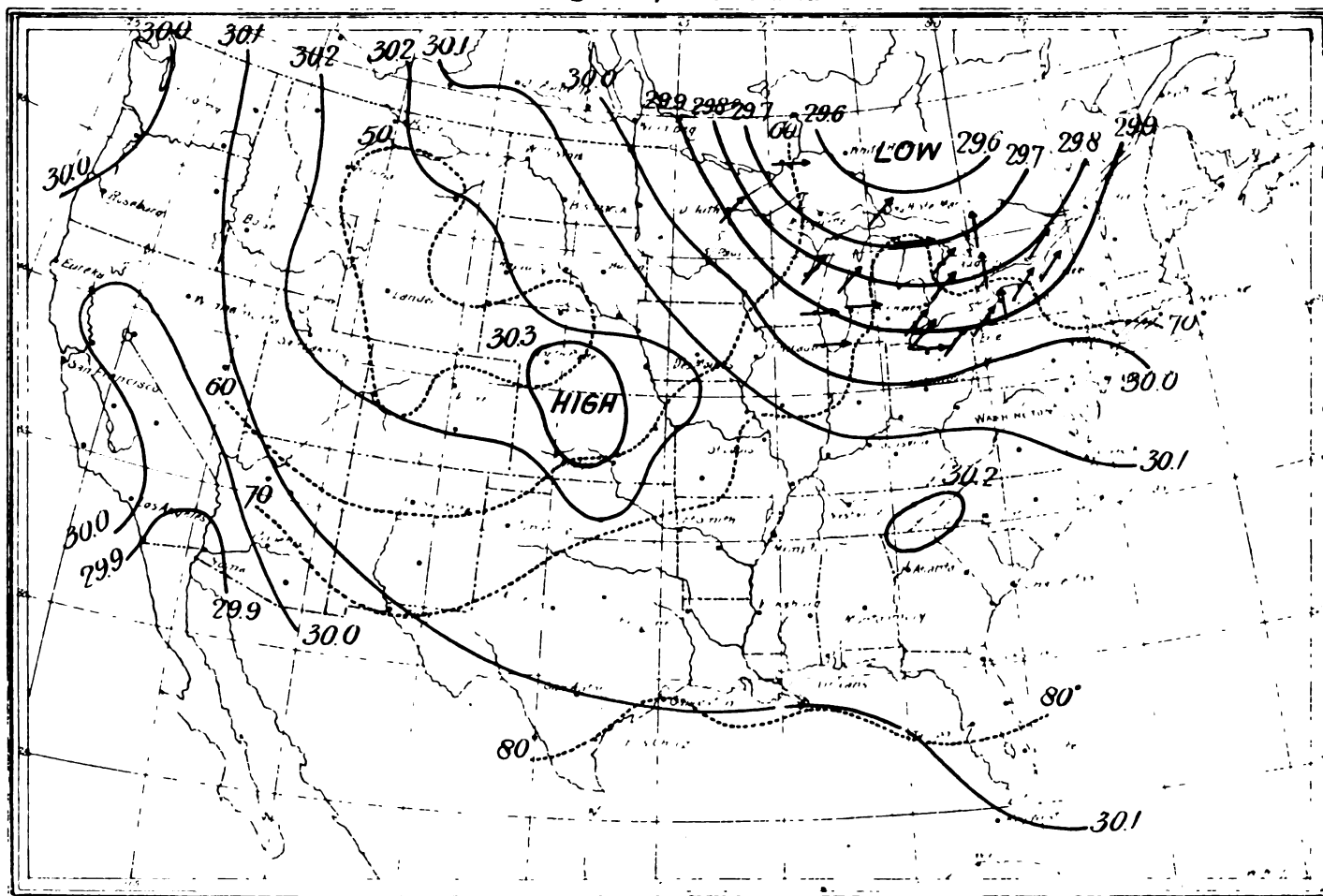


Chart OOOOXXIX.

August 16, 1891—8 a. m.

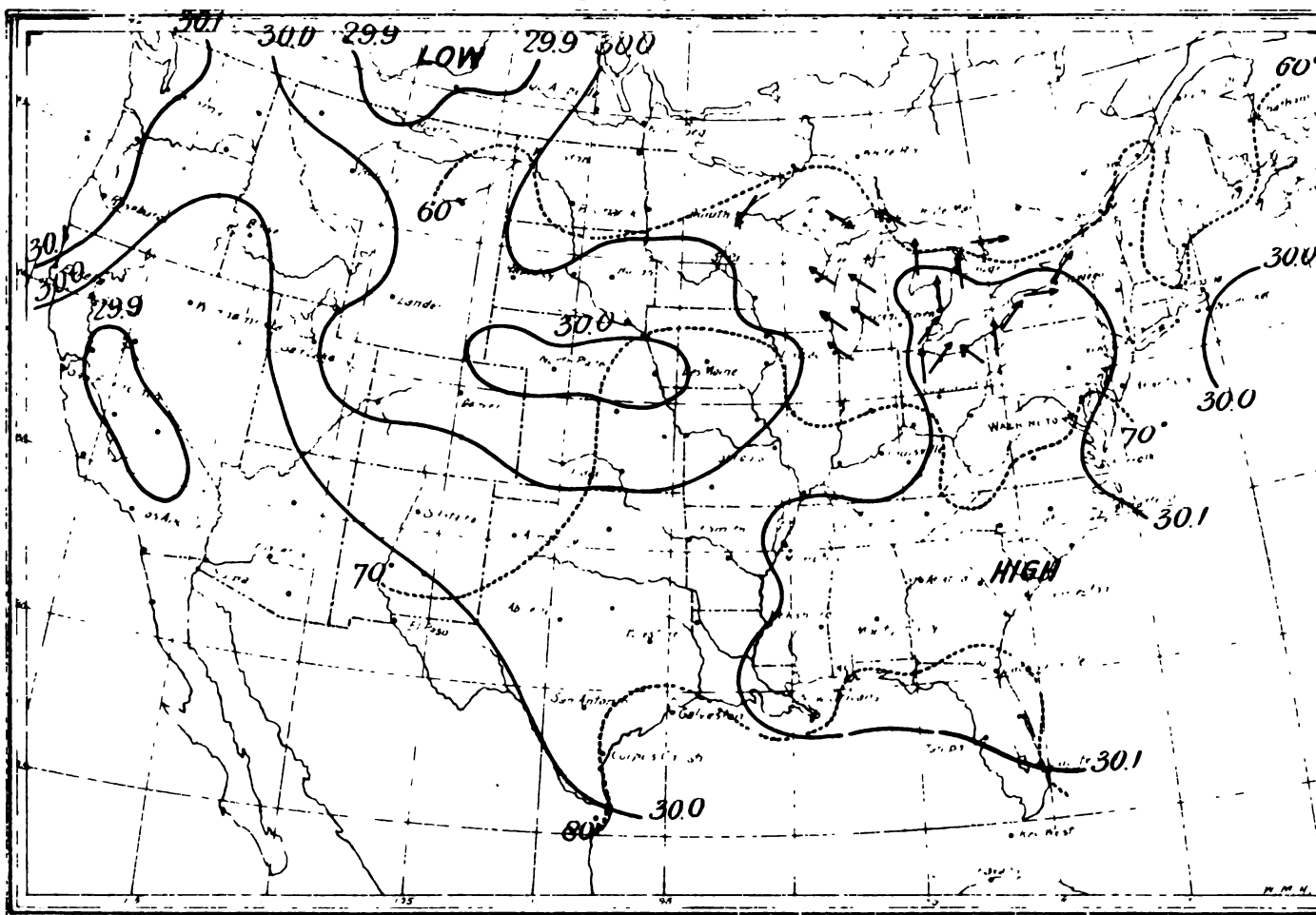


Chart OOOOXXX.

August 16, 1891—8 p. m.

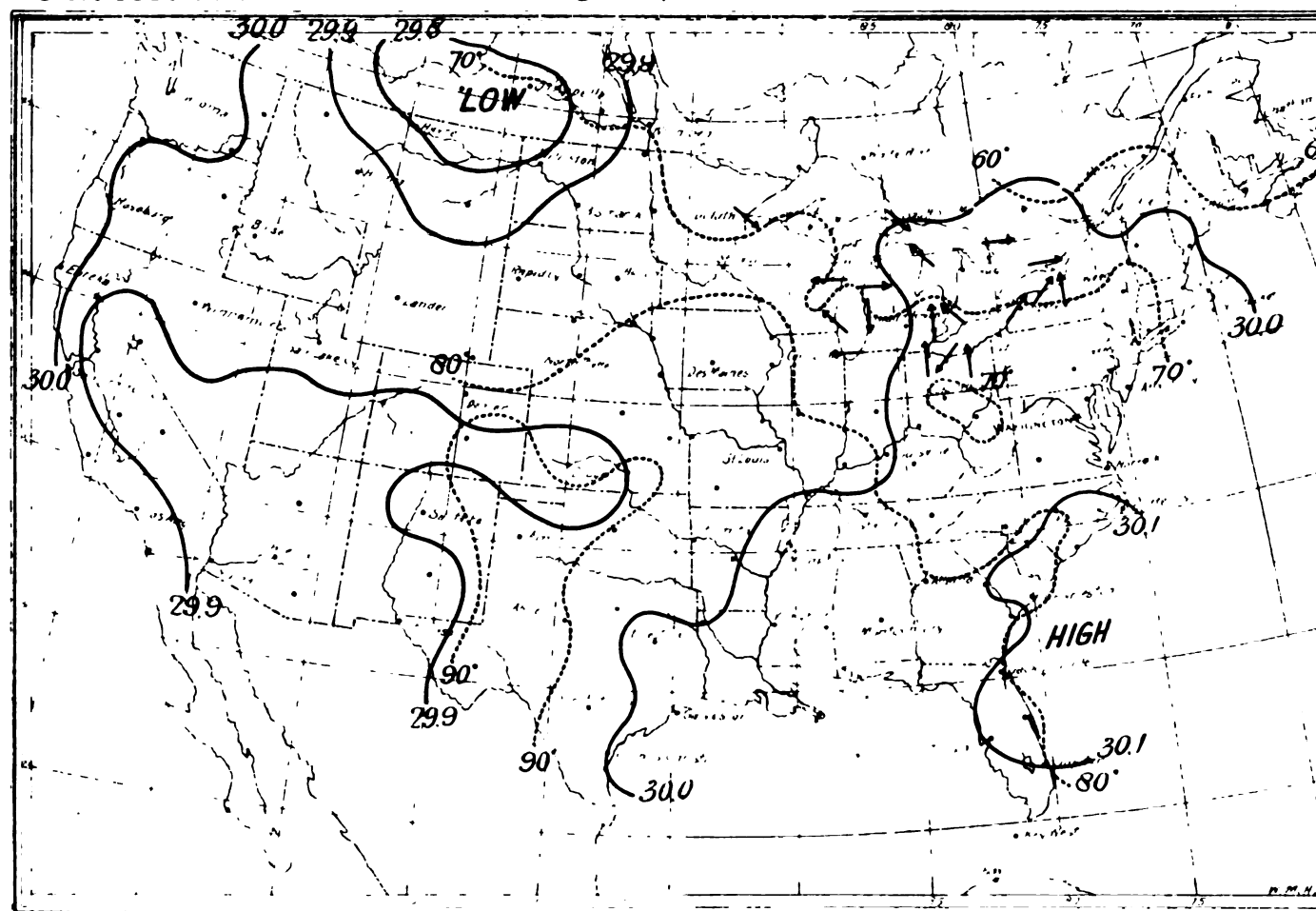


Chart OOOOXXXI.

August 17, 1891—8 a. m.

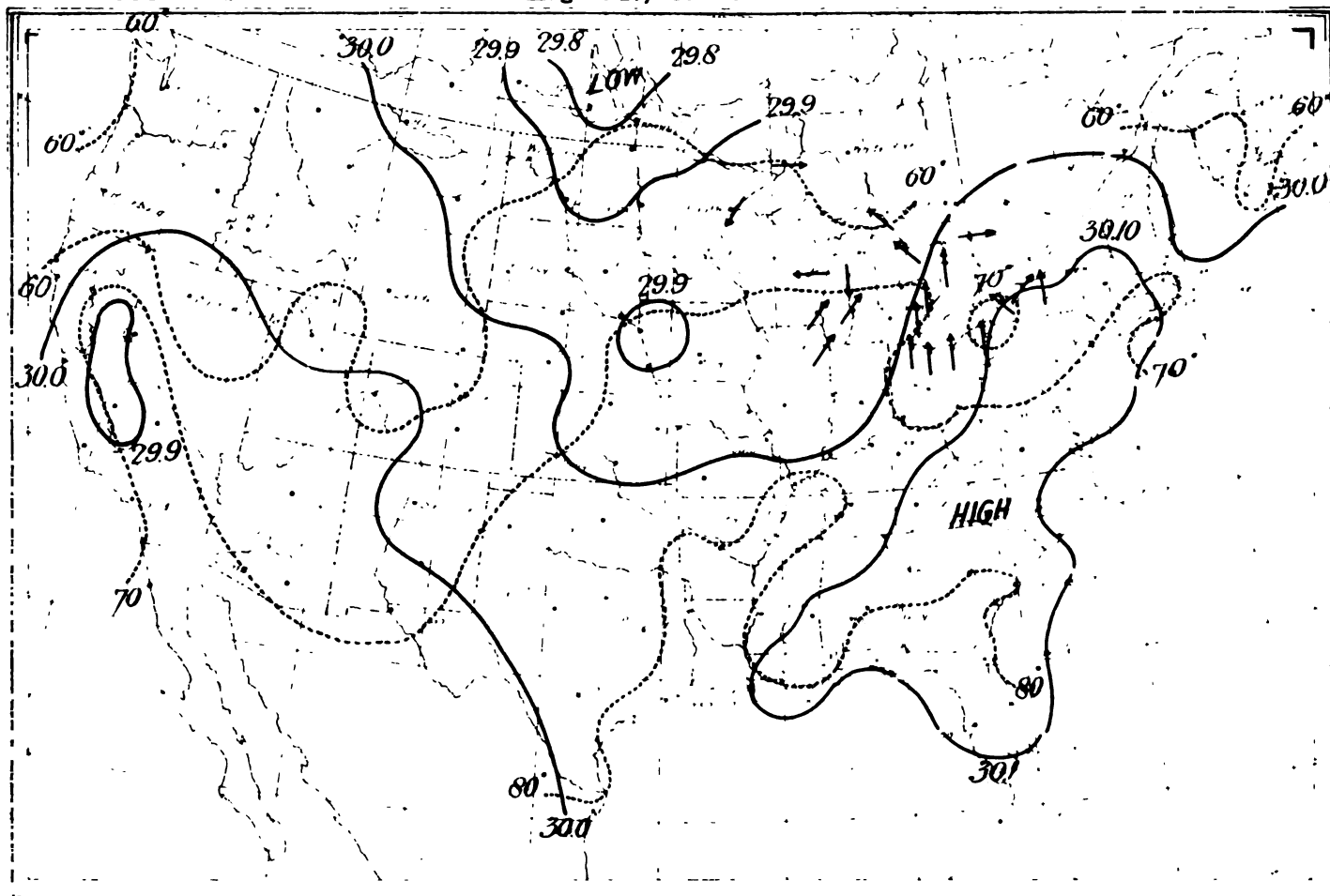


Chart OOOOXXXII.

August 17, 1891—8 p. m.

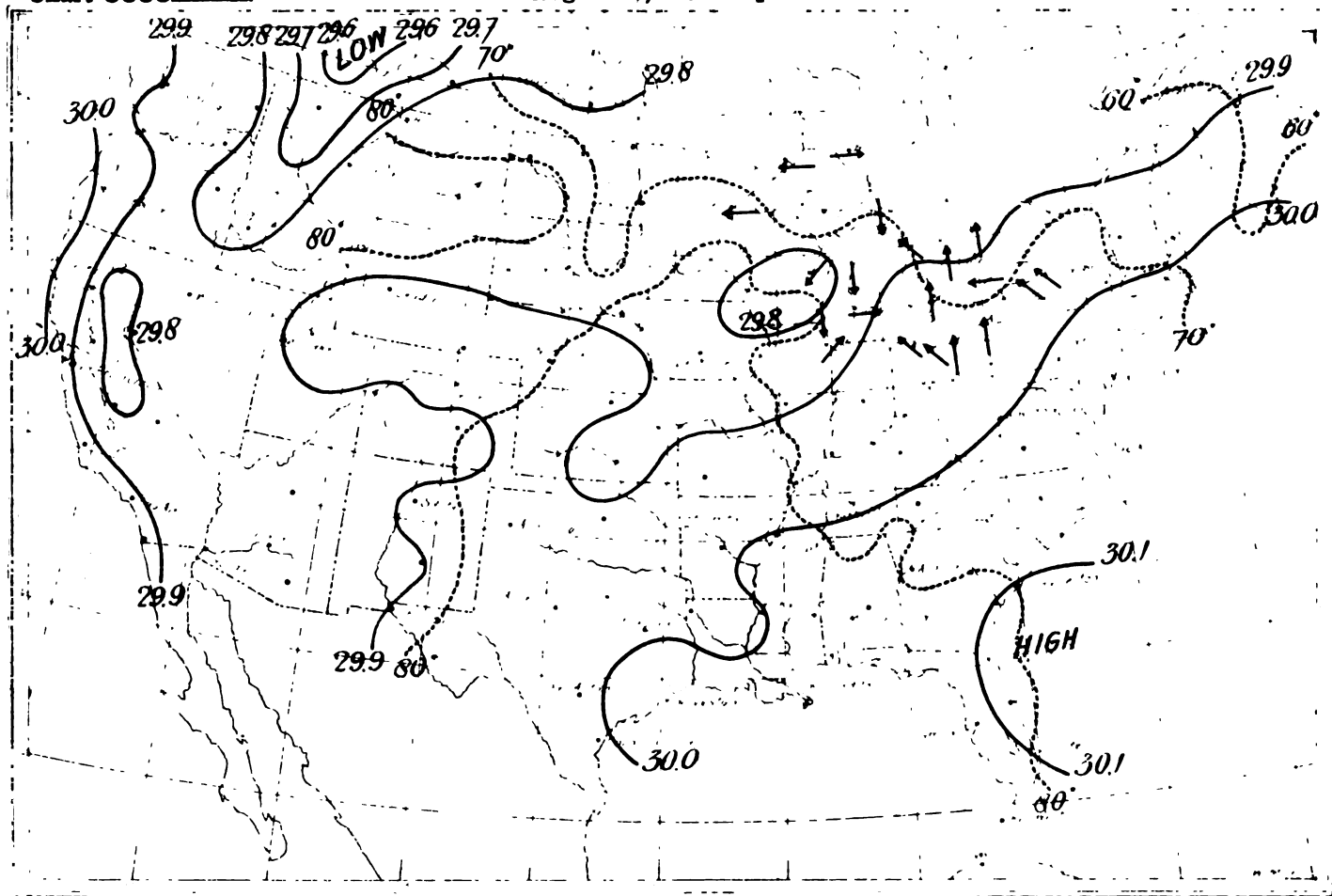


Chart OOOOXXXIII.

August 29, 1892—8 a. m.

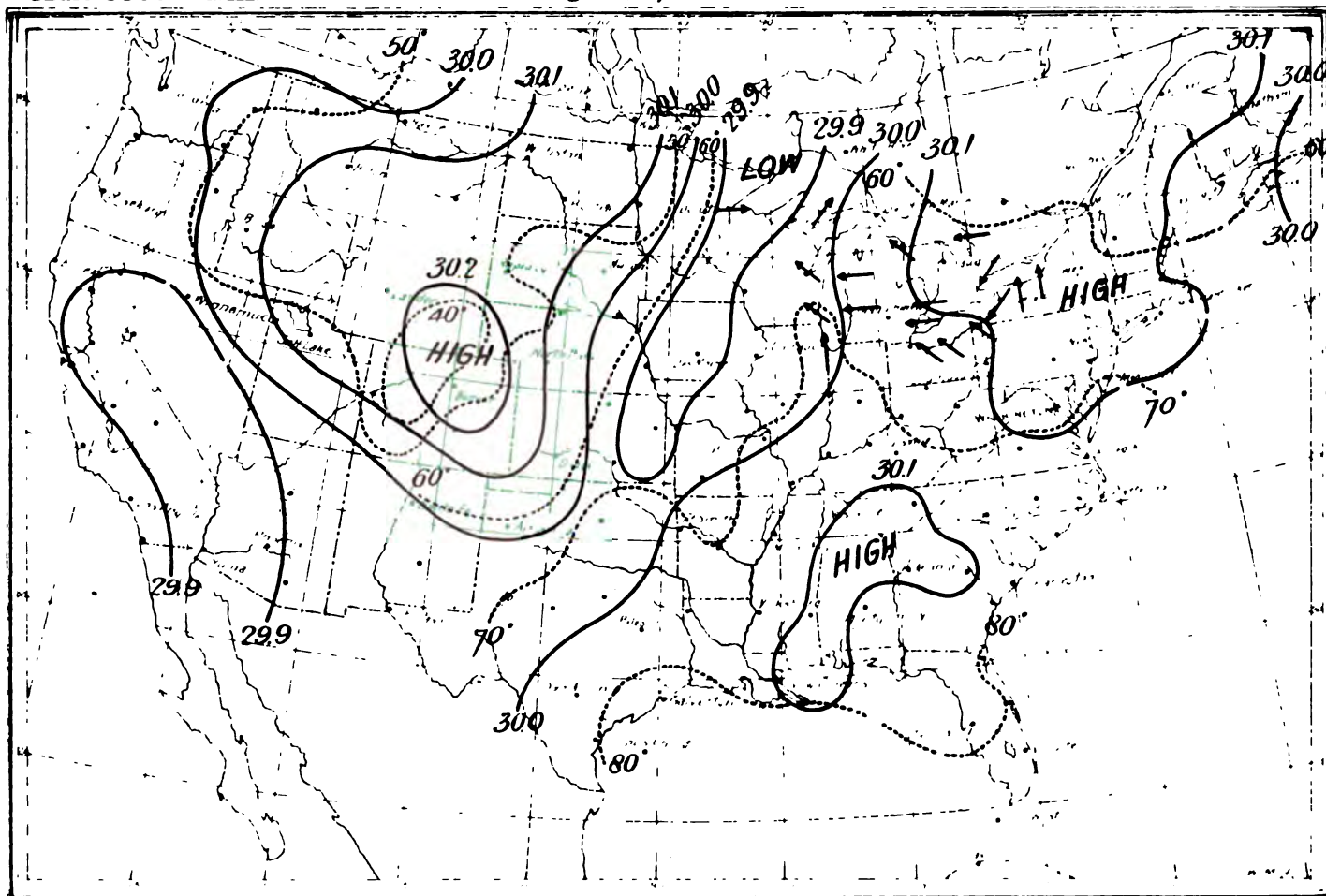


Chart OOOOXXXIV.

August 29, 1892—8 p. m.

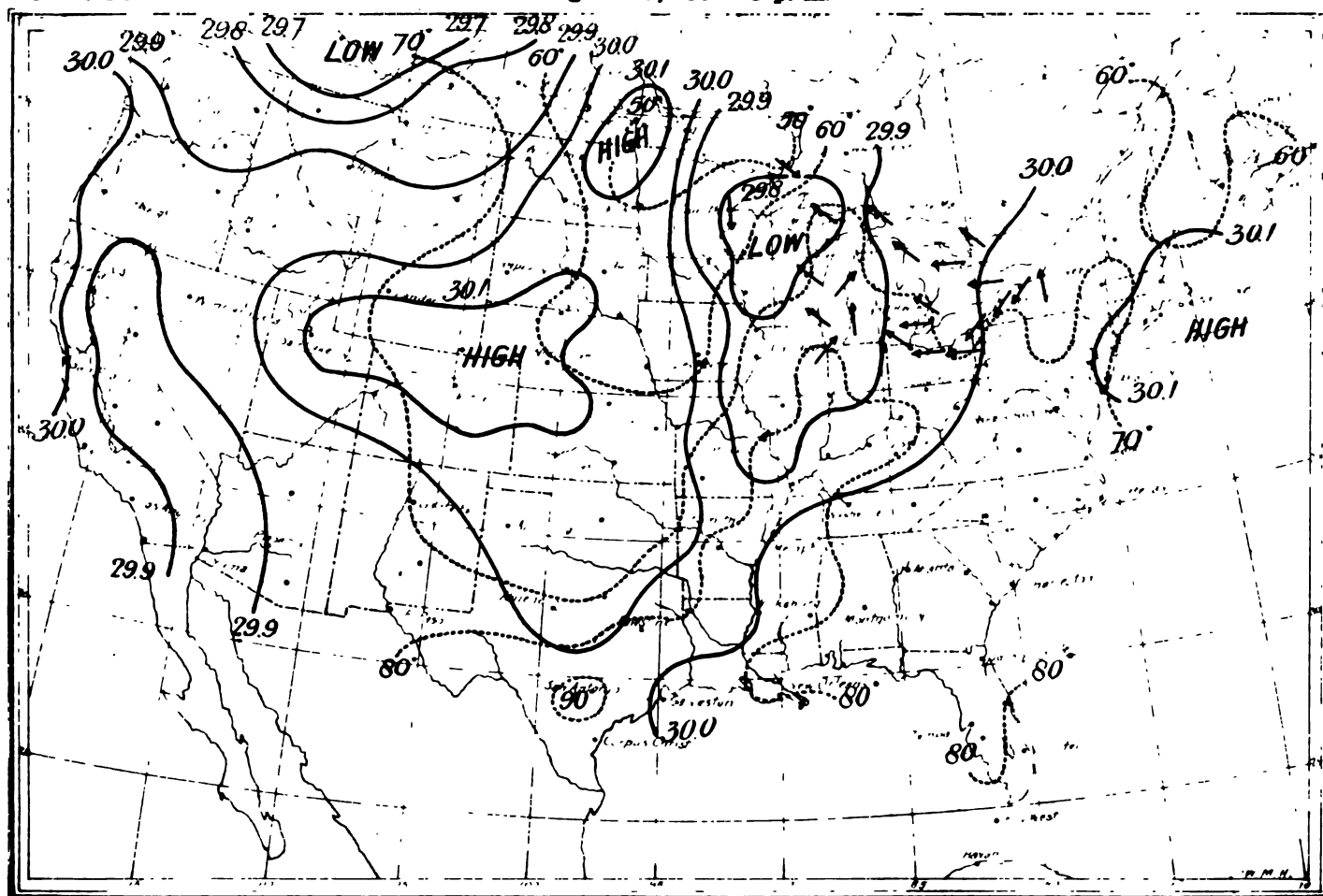


Chart CCCCCXXV.

August 30, 1892—8 a. m.

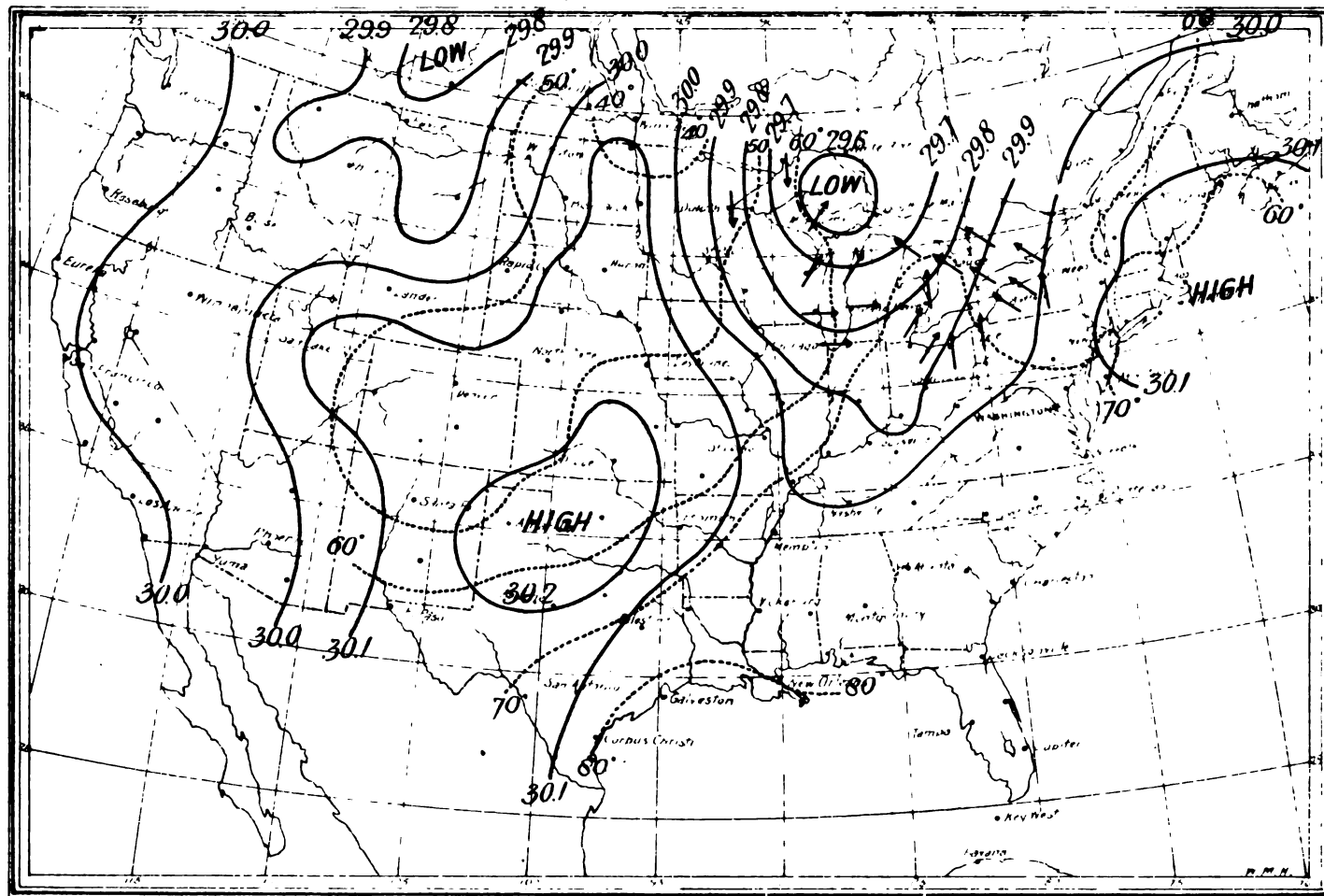


Chart CCCCCXXVI.

August 30, 1892—8 p. m.

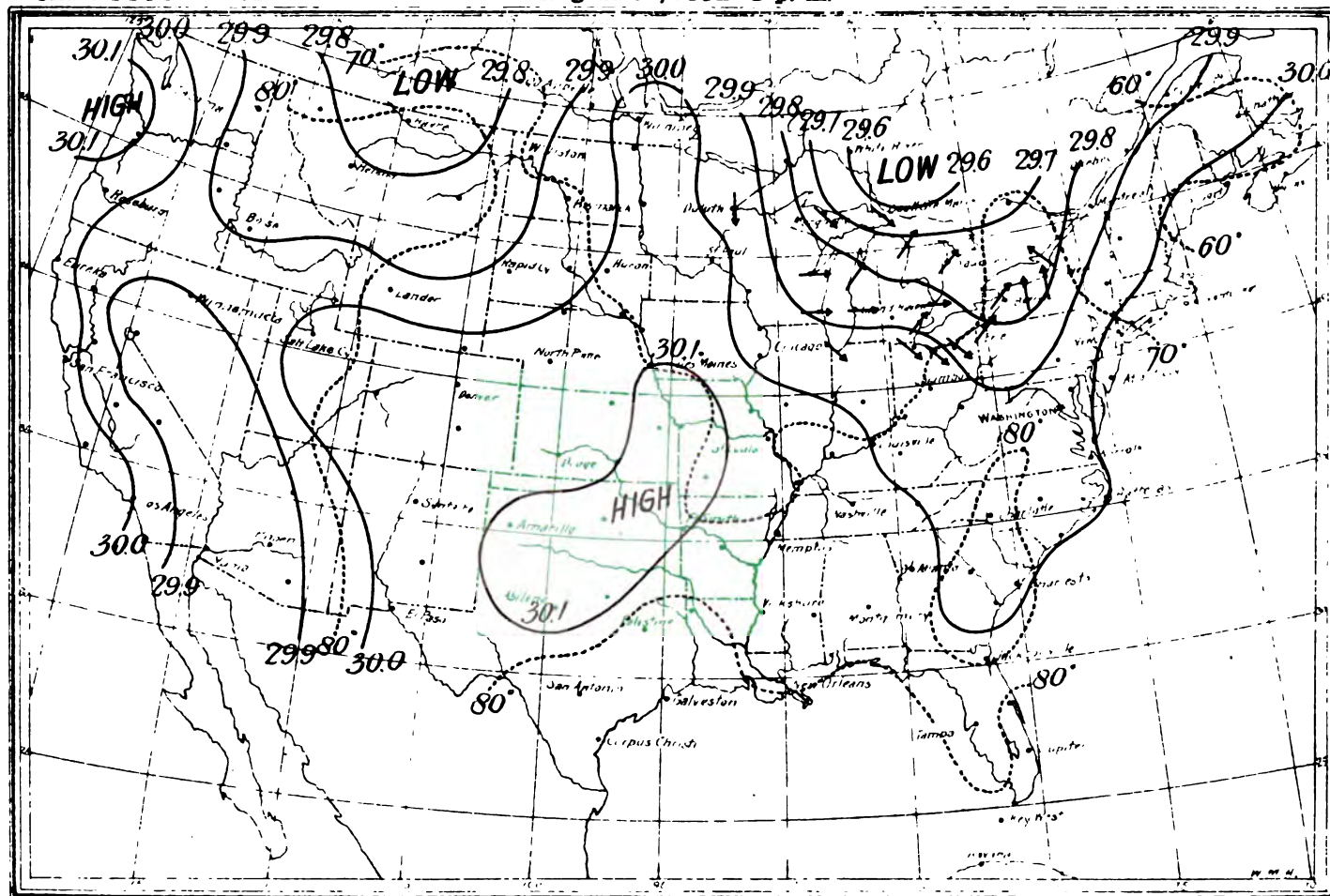


Chart CCCCXXXVII.

August 28, 1898—8 a. m.

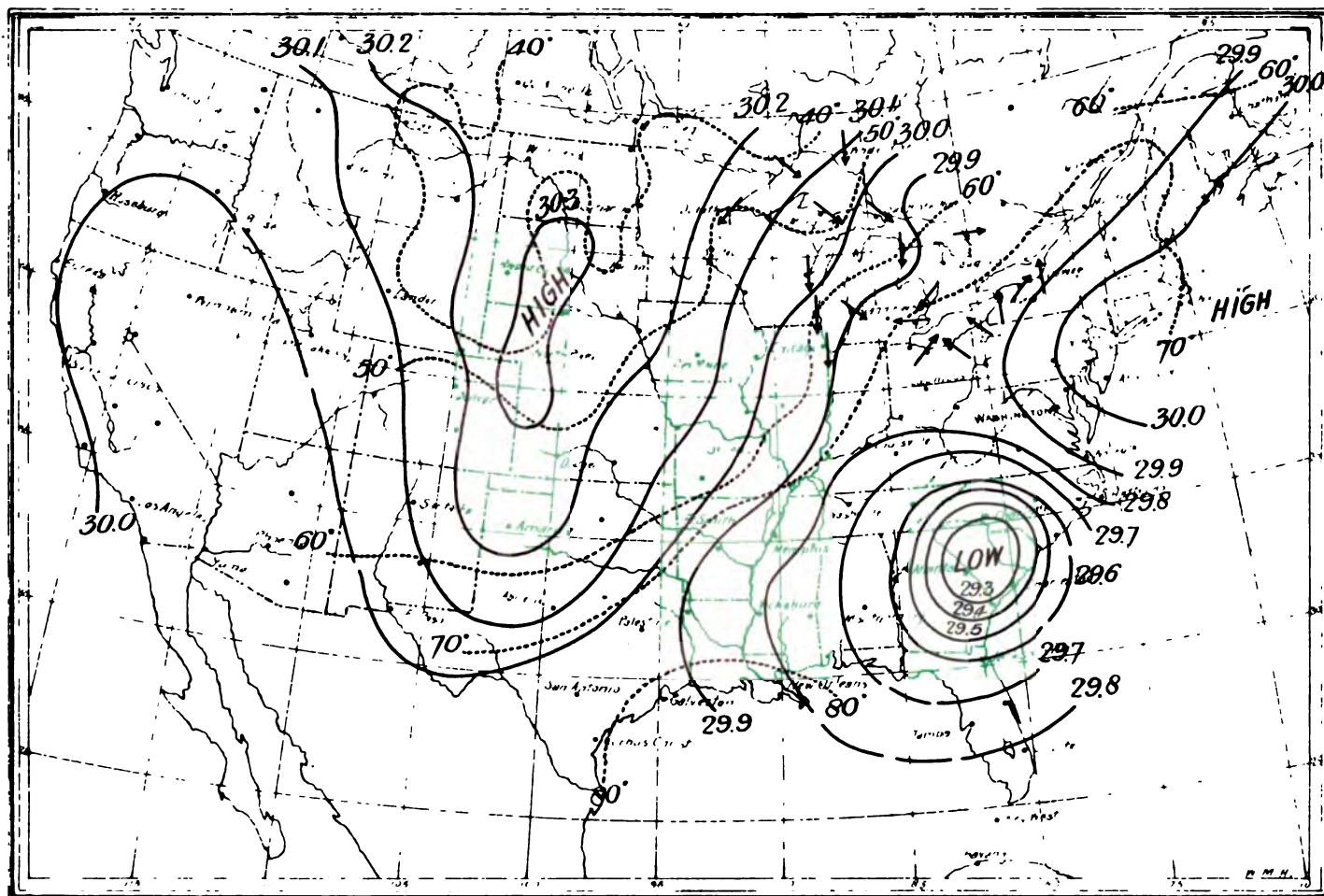


Chart CCCCXXXVIII.

August 28, 1898—8 p. m.

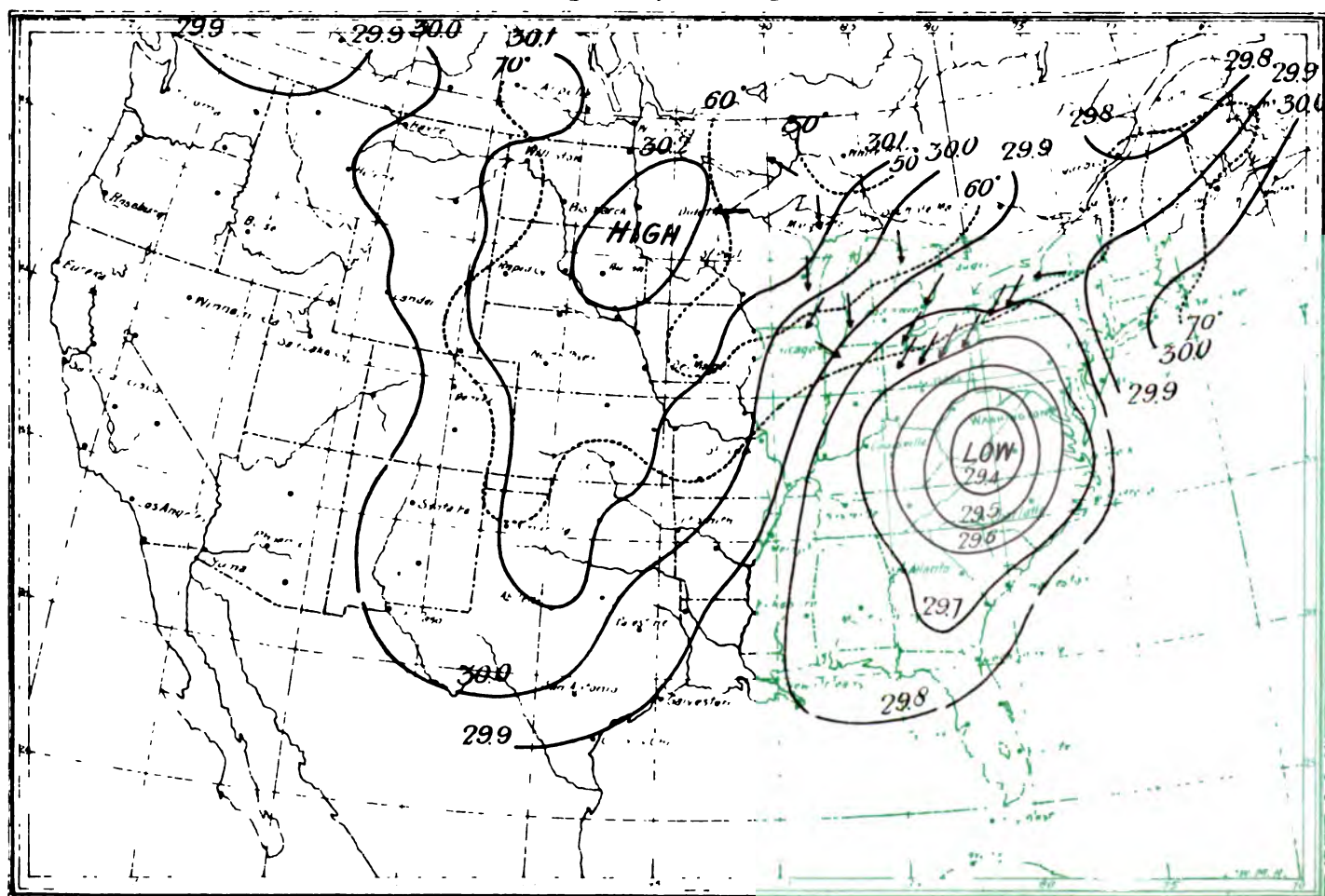


Chart OOOOXXXIX.

August 29, 1898—8 a. m.

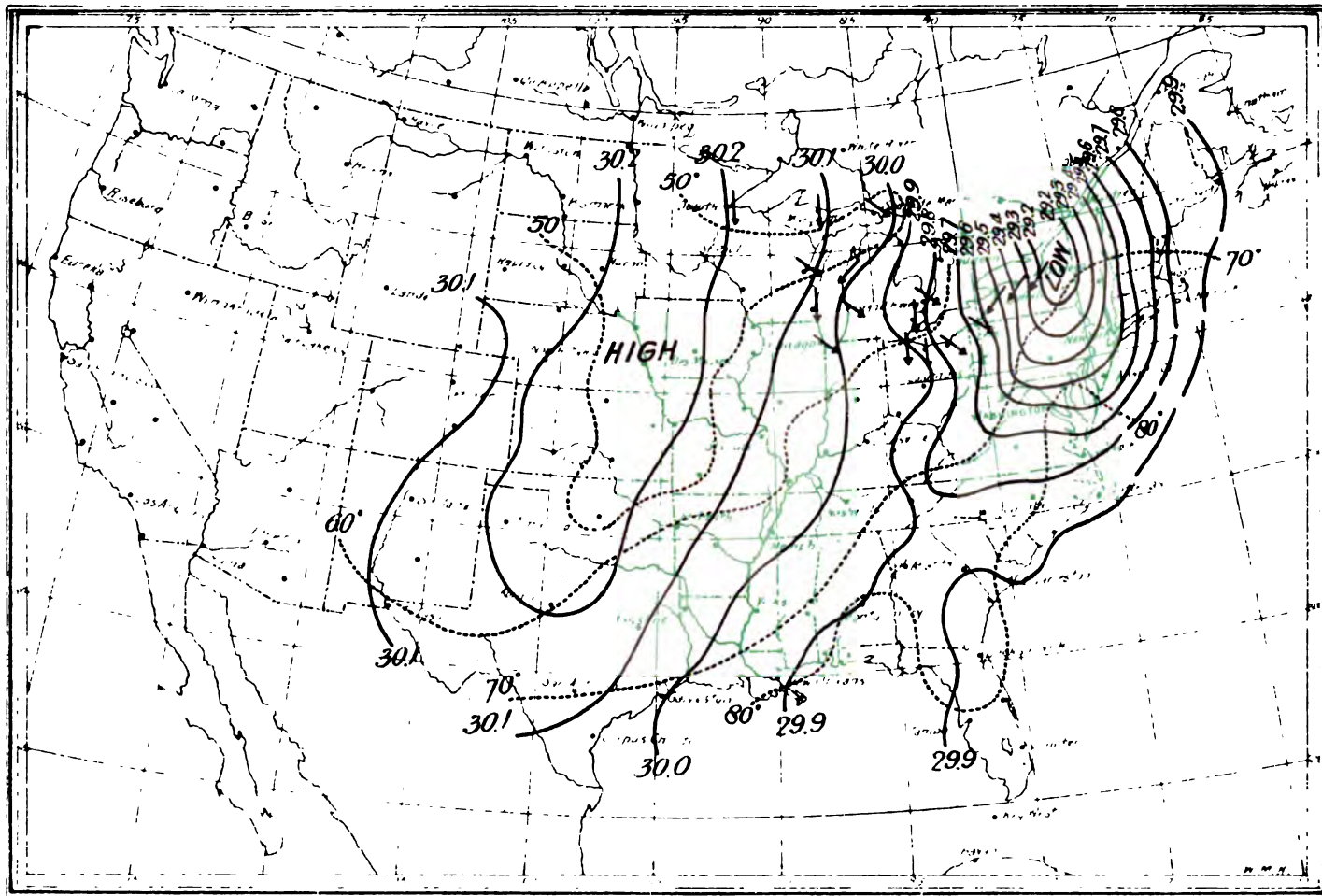


Chart OOOOXL.

August 29, 1898—8 p. m.

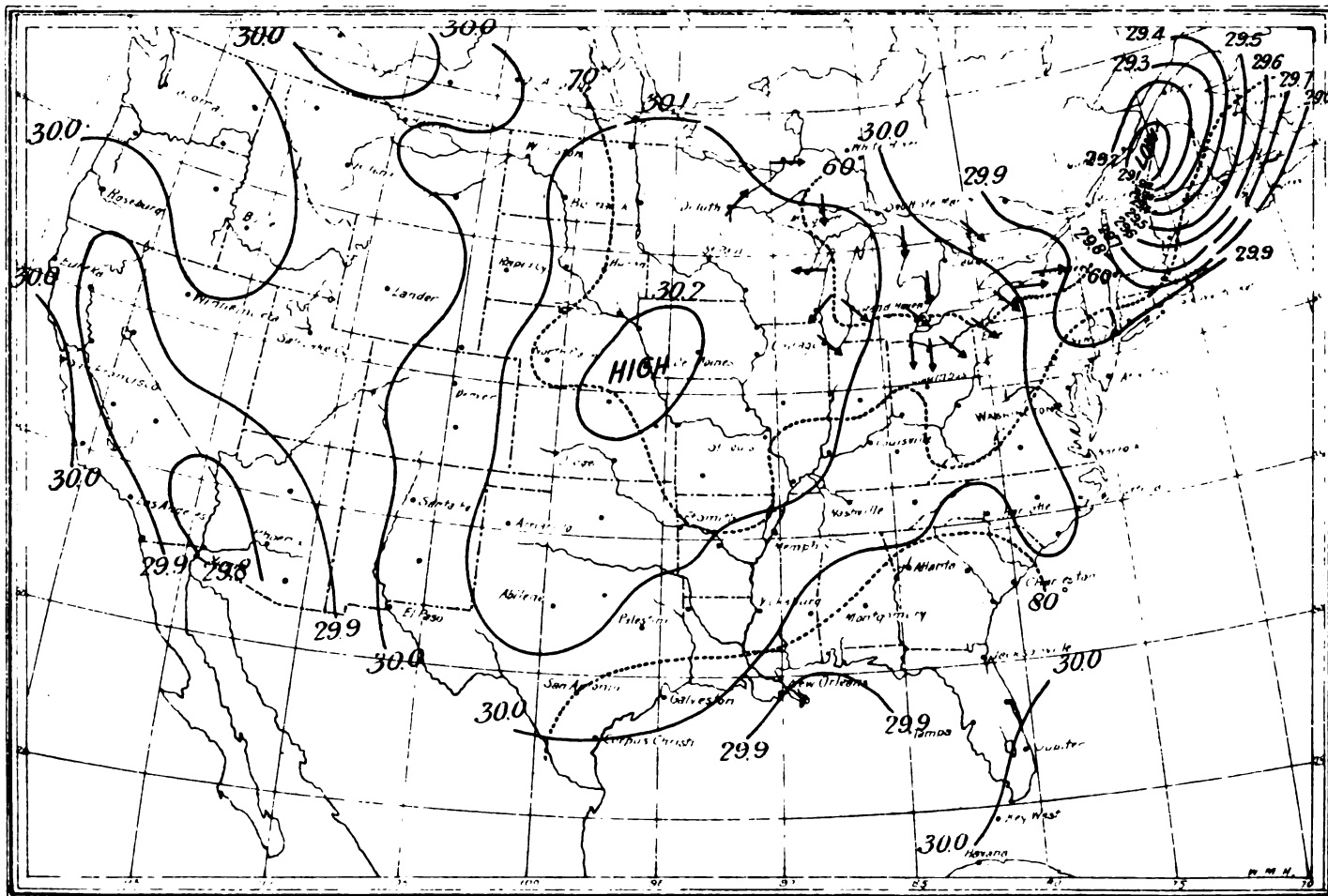


Chart CCCCXLI.

September 17, 1876—7:35 a. m.

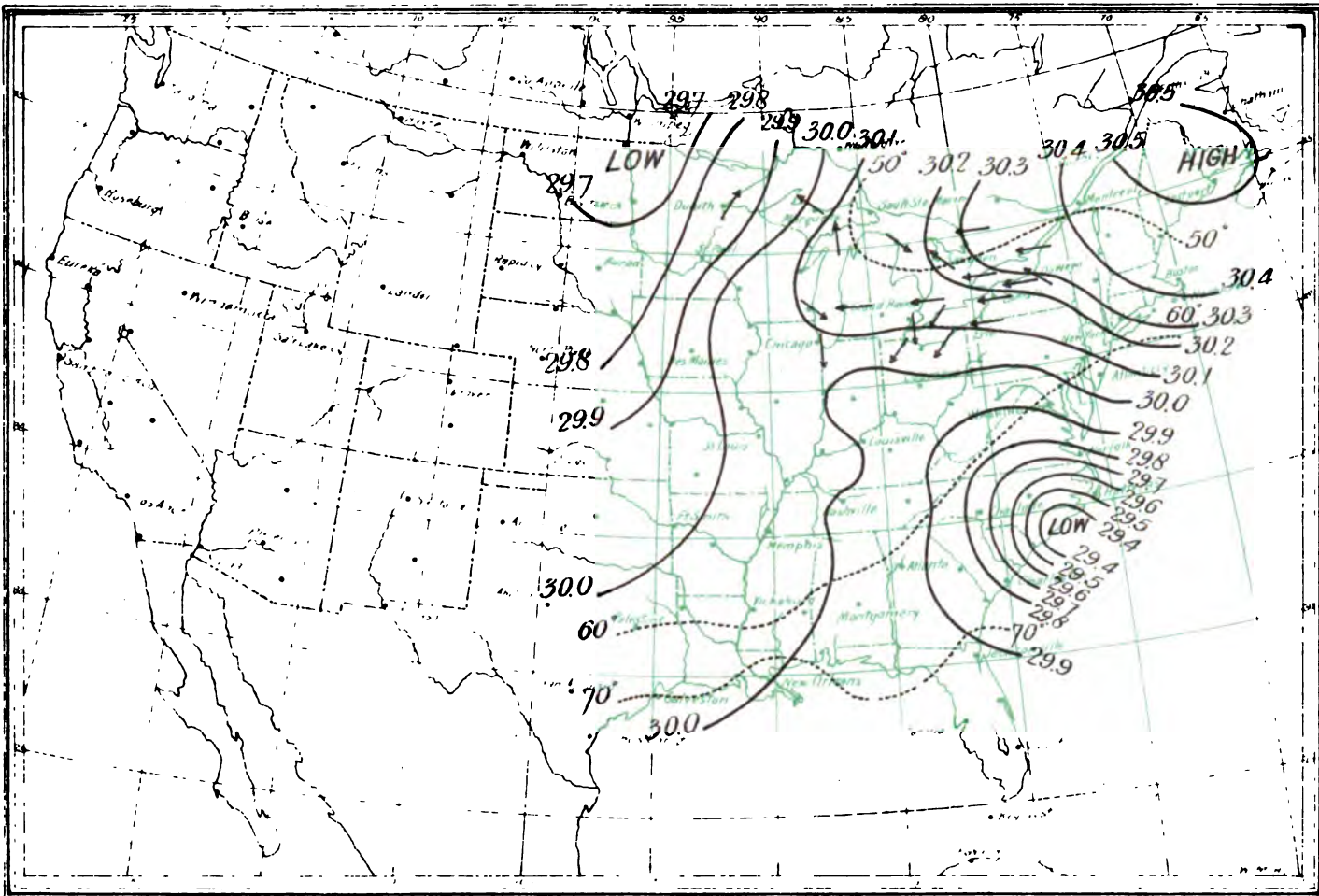


Chart CCCCXLII.

September 17, 1876—4:35 p. m.

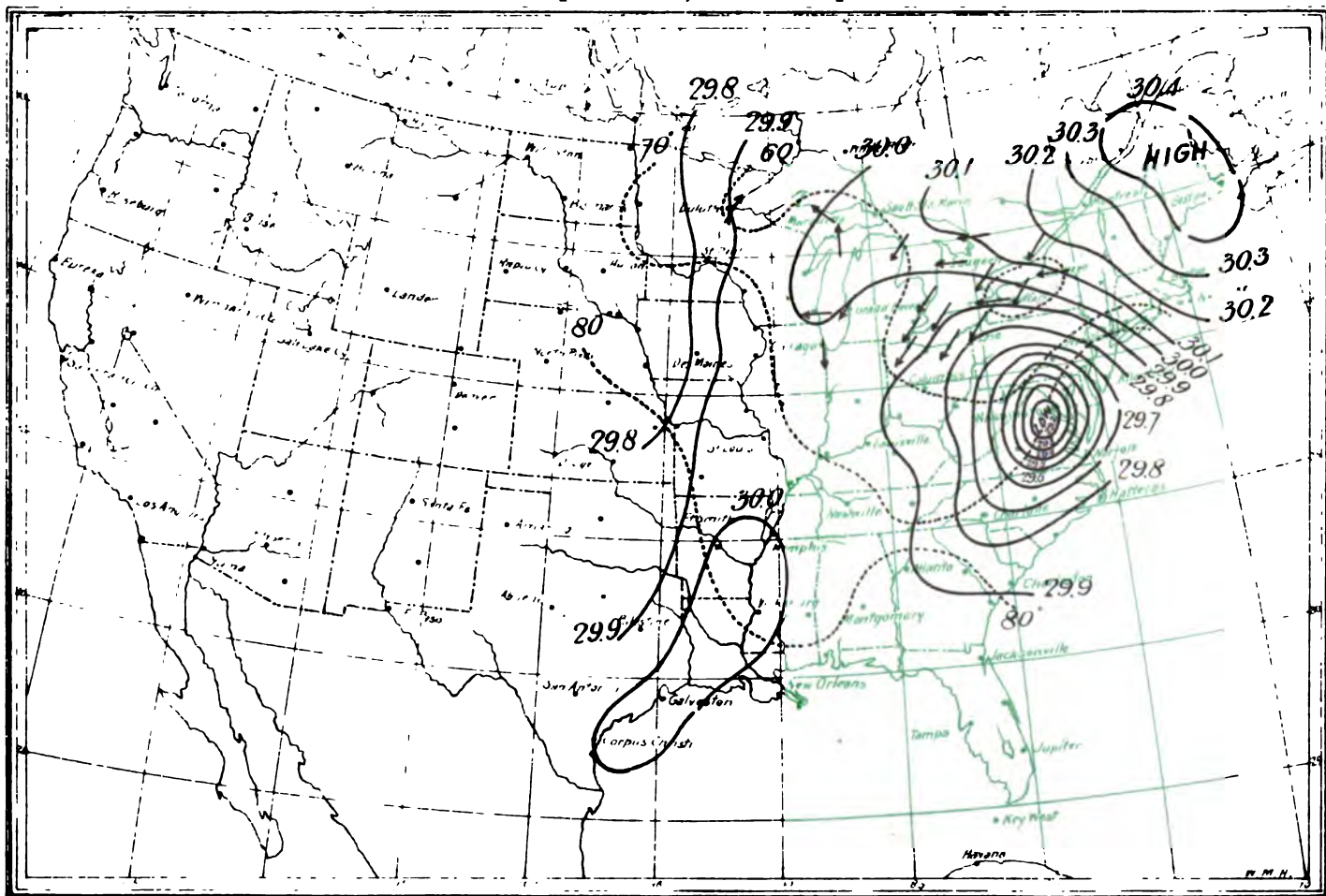


Chart CCCCXLIII.

September 18, 1876—7:35 a. m.

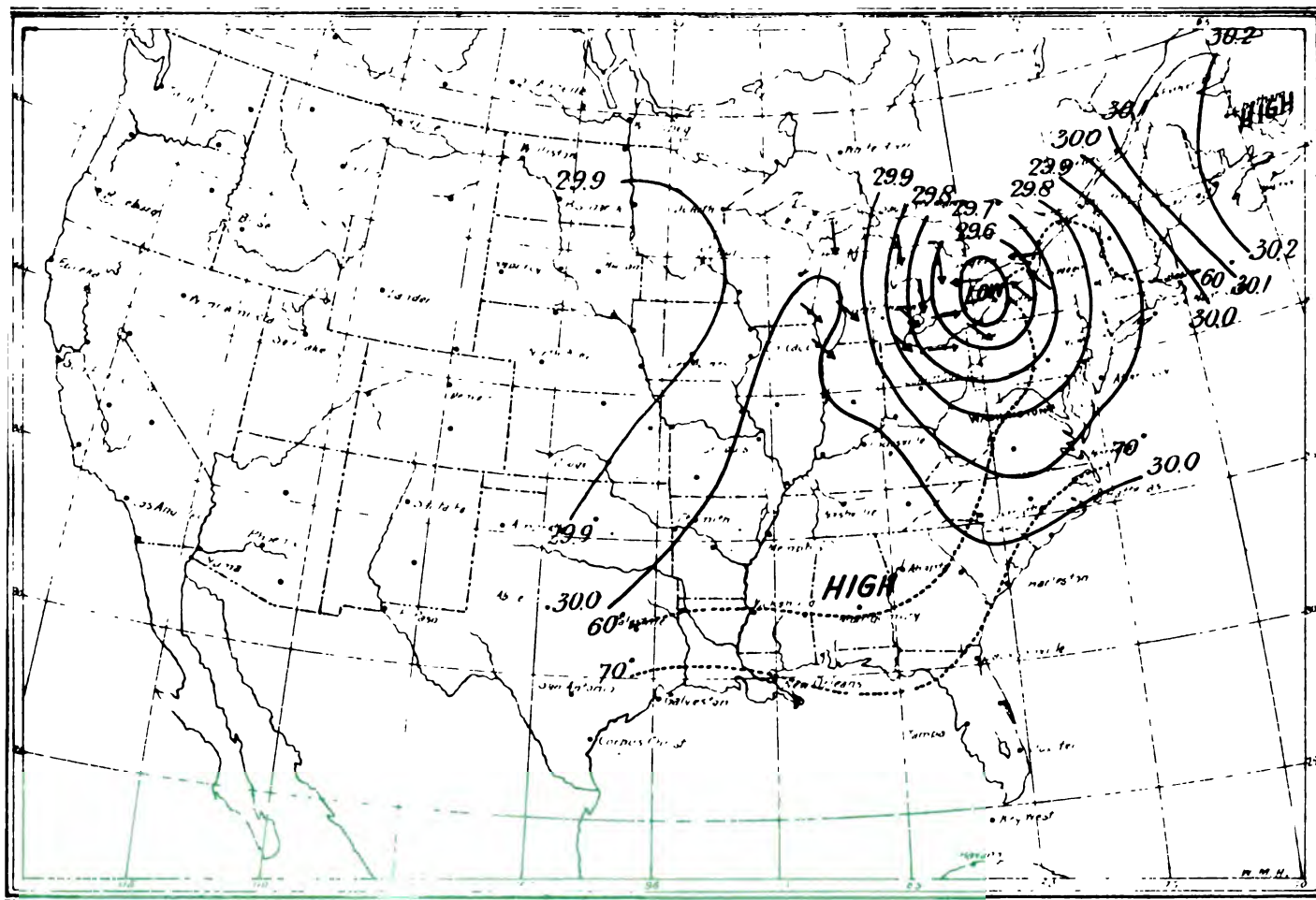


Chart CCCCXLIV.

September 18, 1876—4:35 p. m.

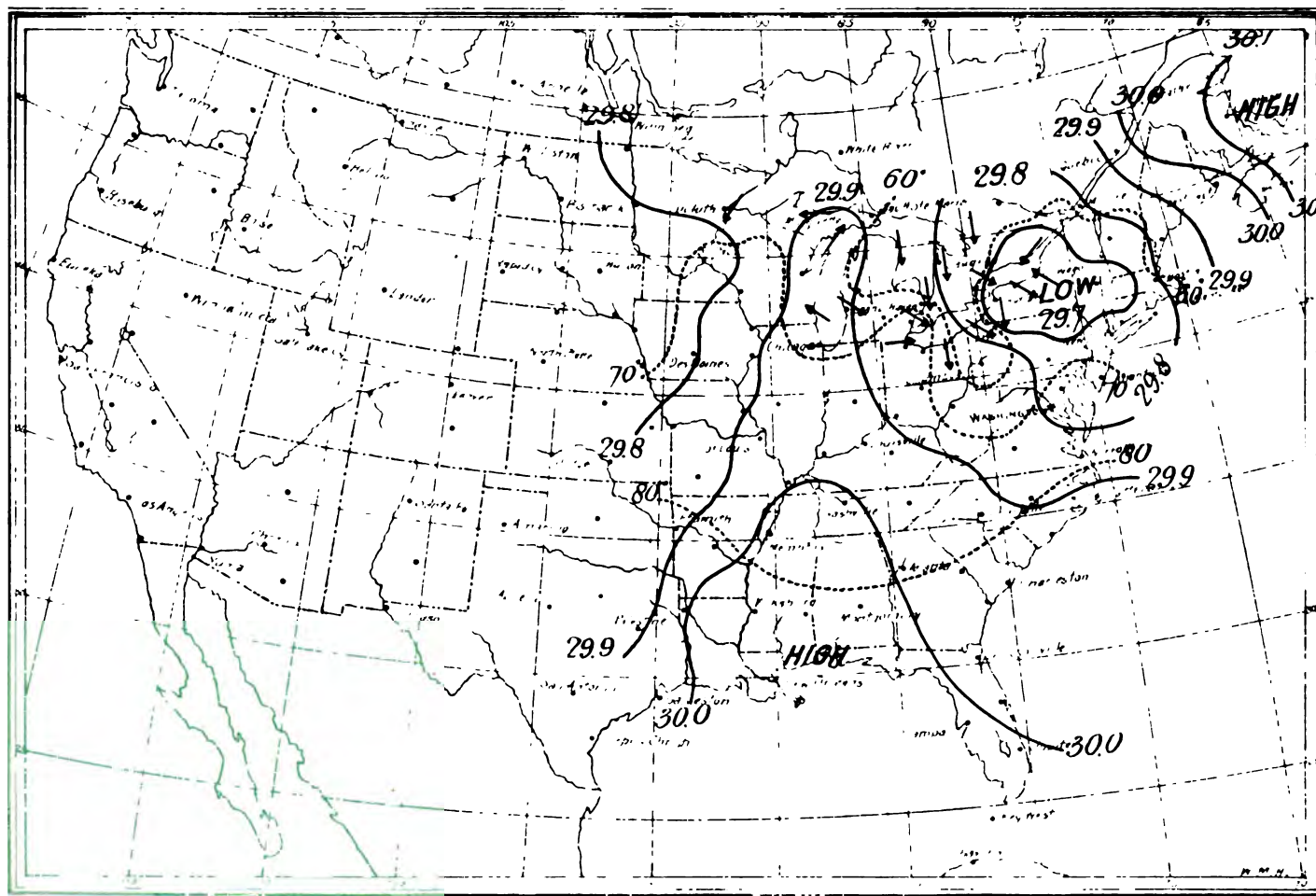


Chart CCCCXLV.

September 12, 1878—7:35 a. m.

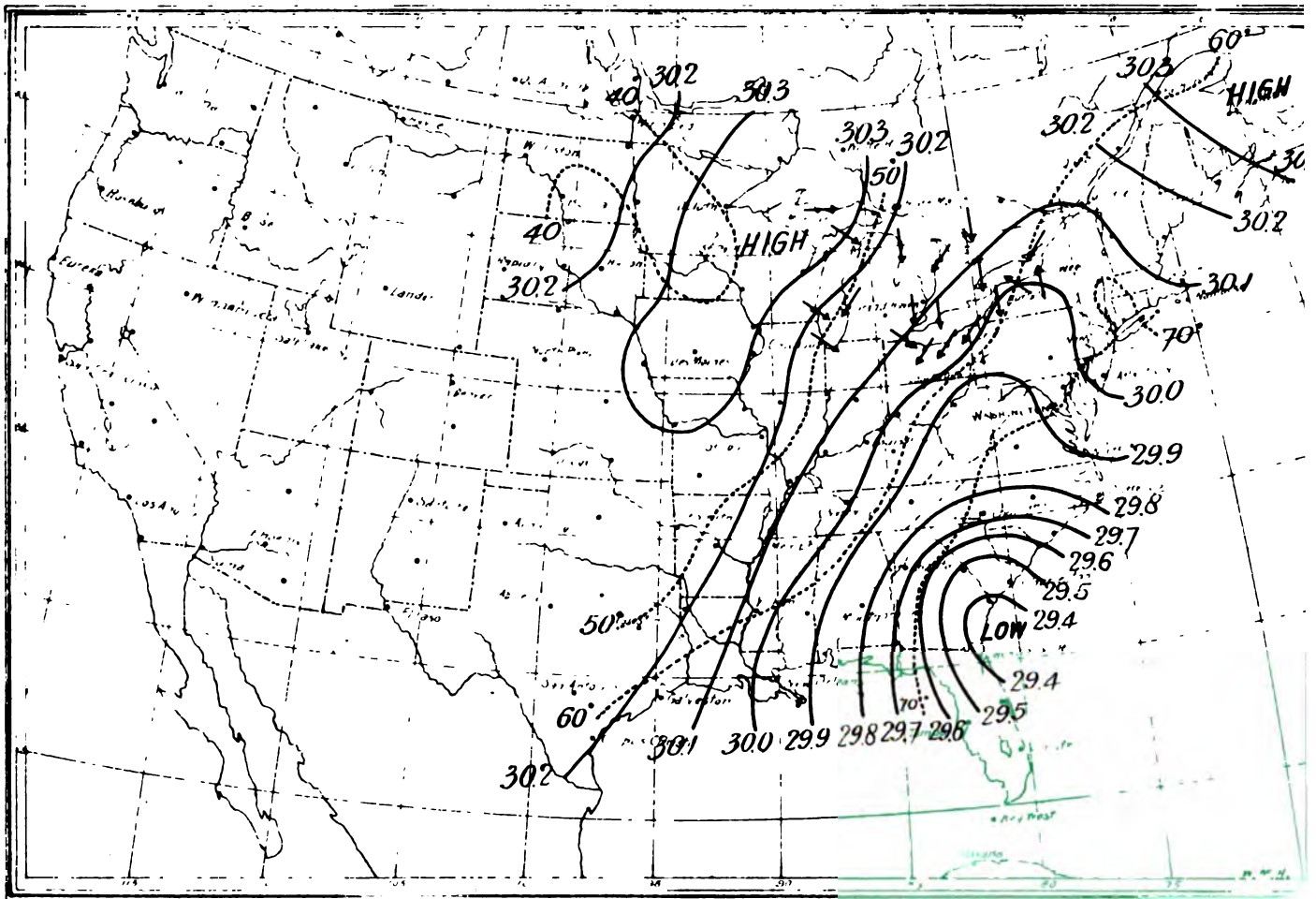


Chart CCCCXLVI.

September 12, 1878—4:35 p. m.

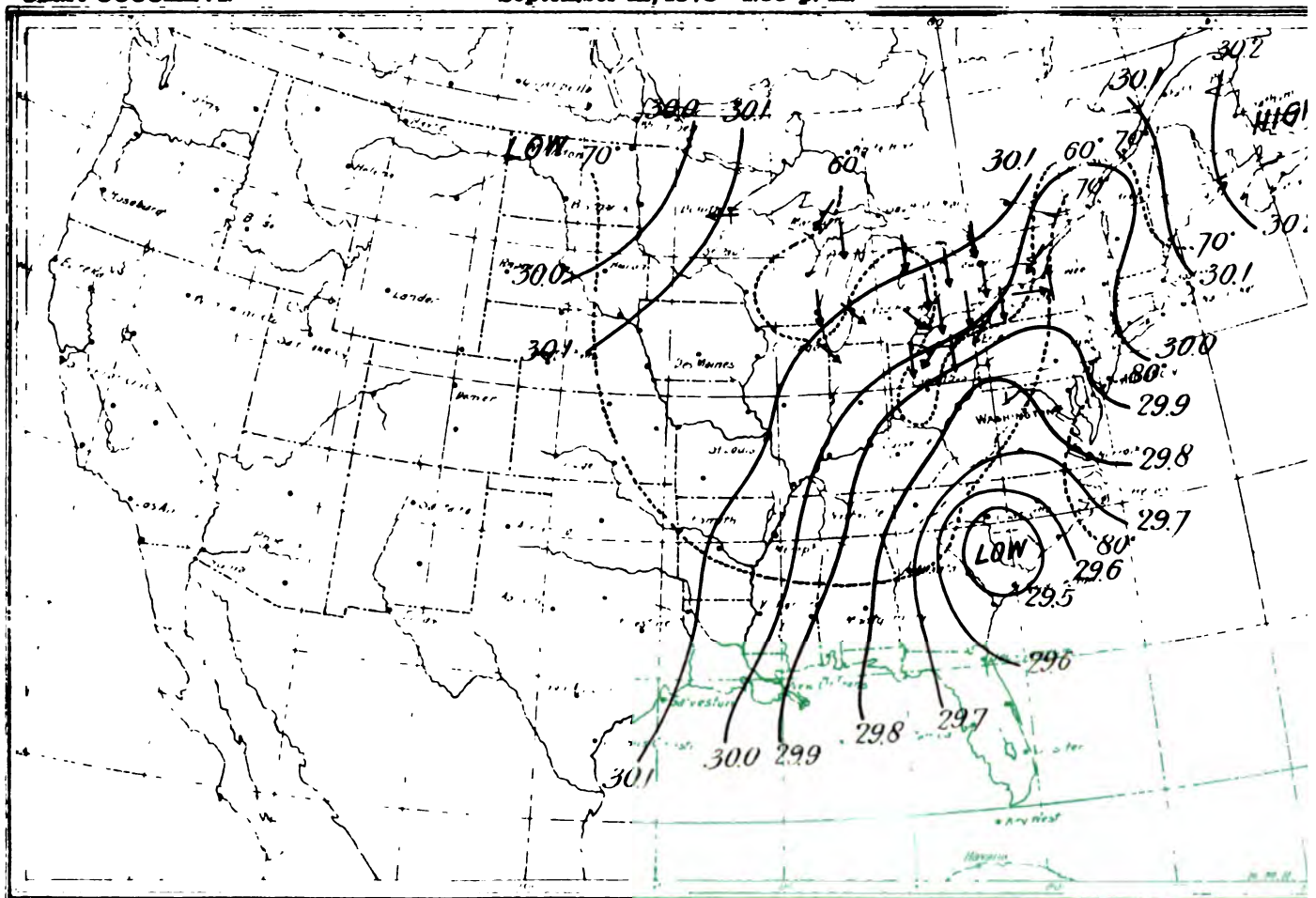


Chart CCCCXLVII.

September 13, 1878—7:35 a. m.

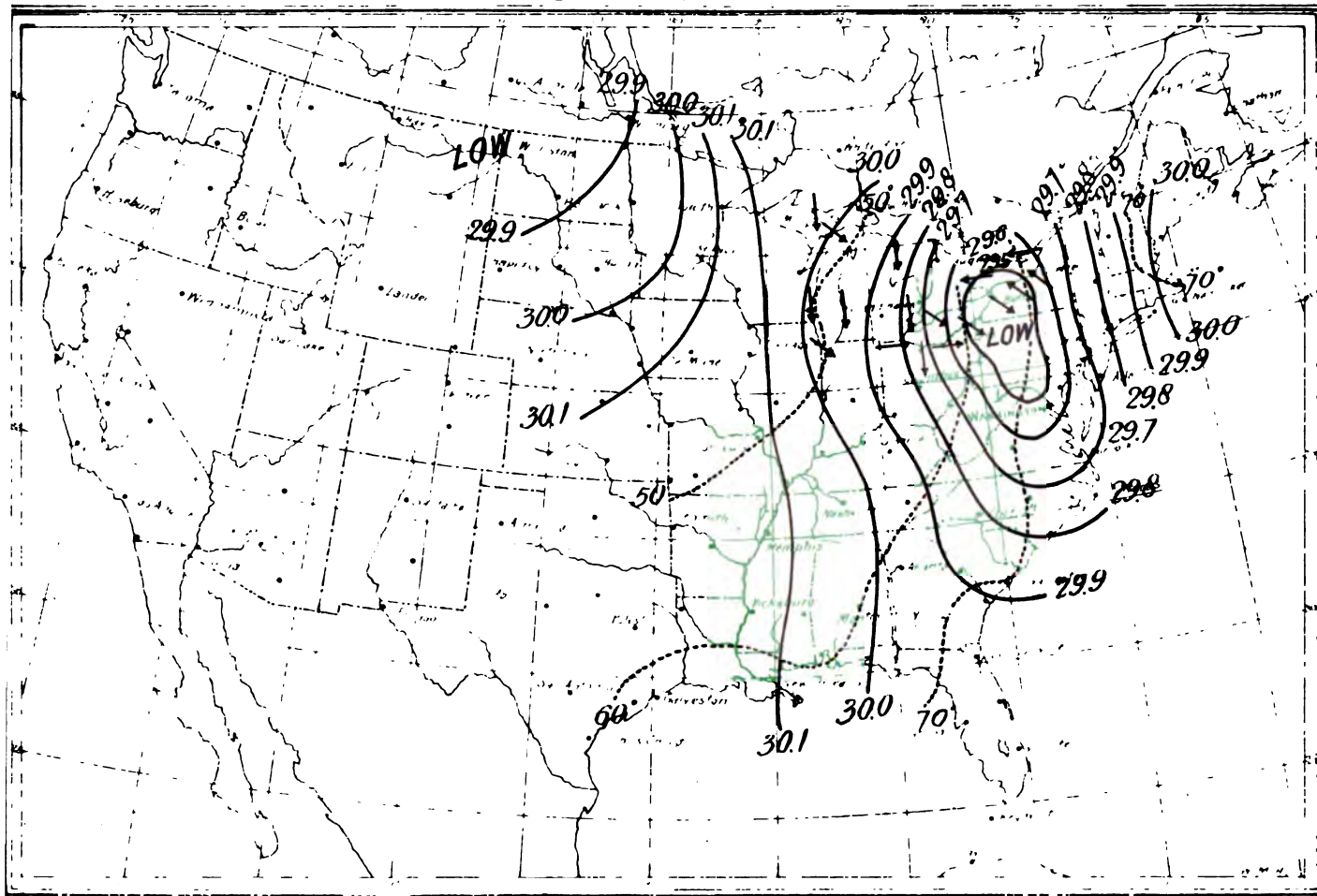


Chart CCCCXLVIII.

September 13, 1878—4:35 p. m.

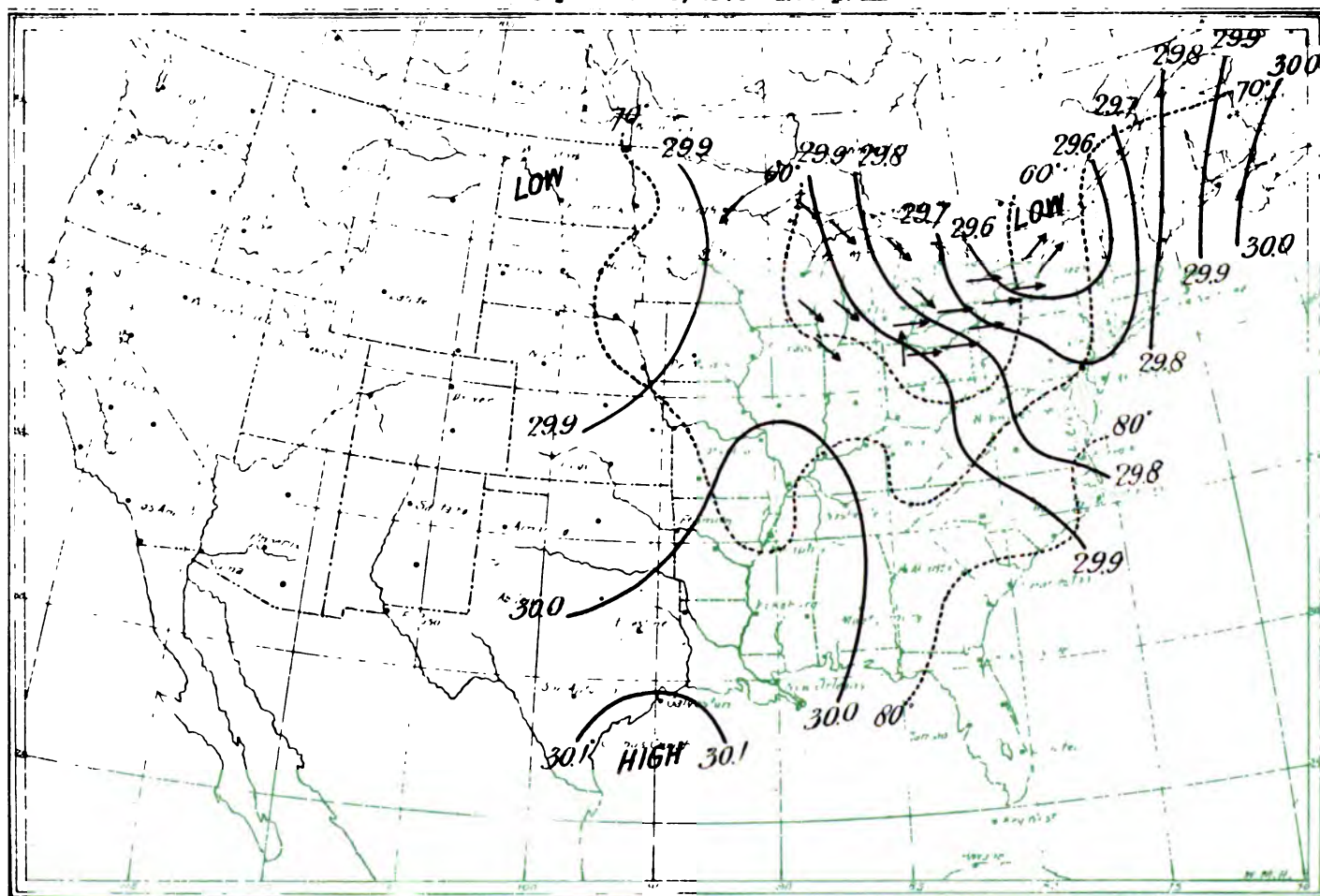


Chart CCCCXLIX.

September 19, 1878—7:35 a. m.

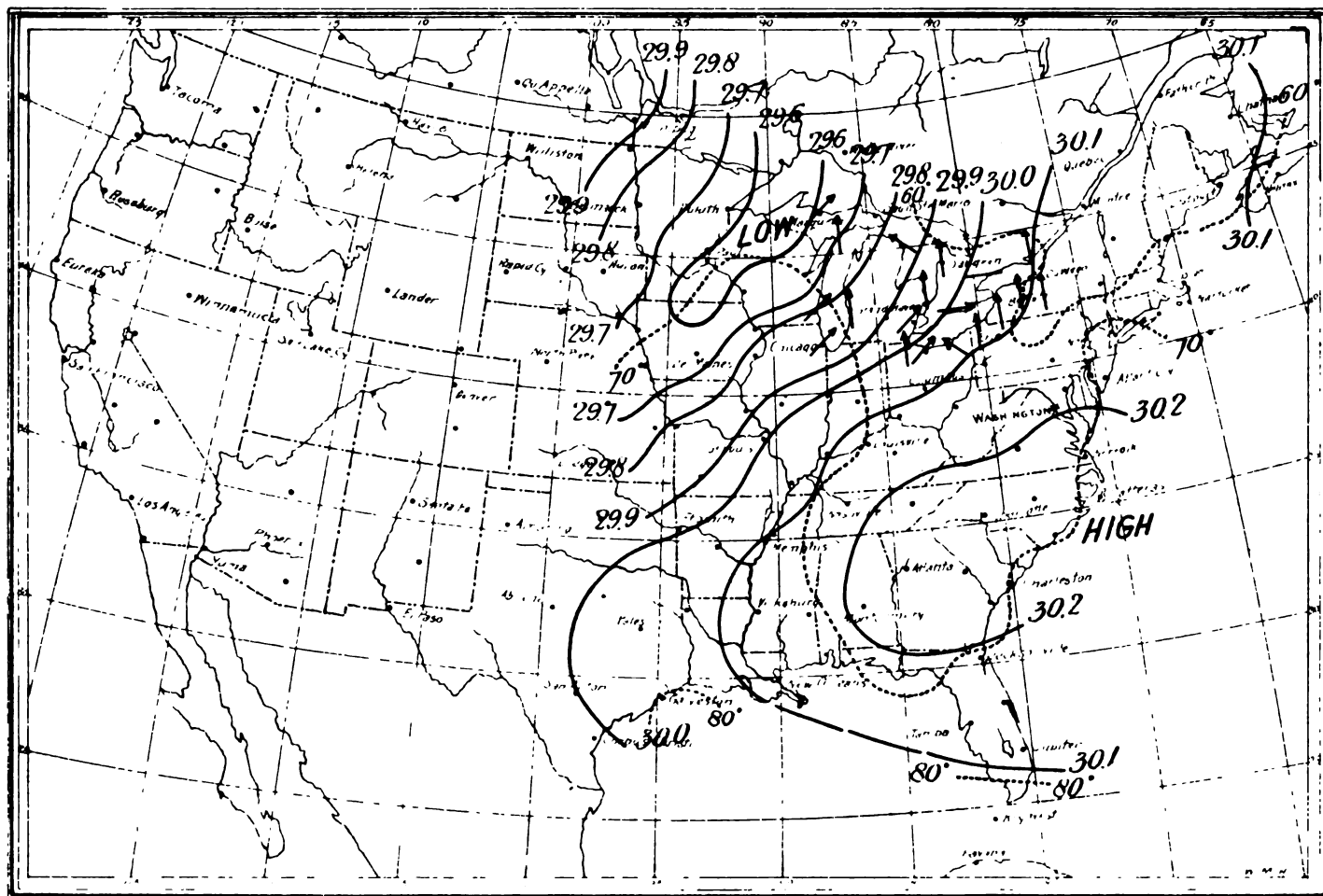


Chart CCCC.

September 19, 1878—4:35 p. m.

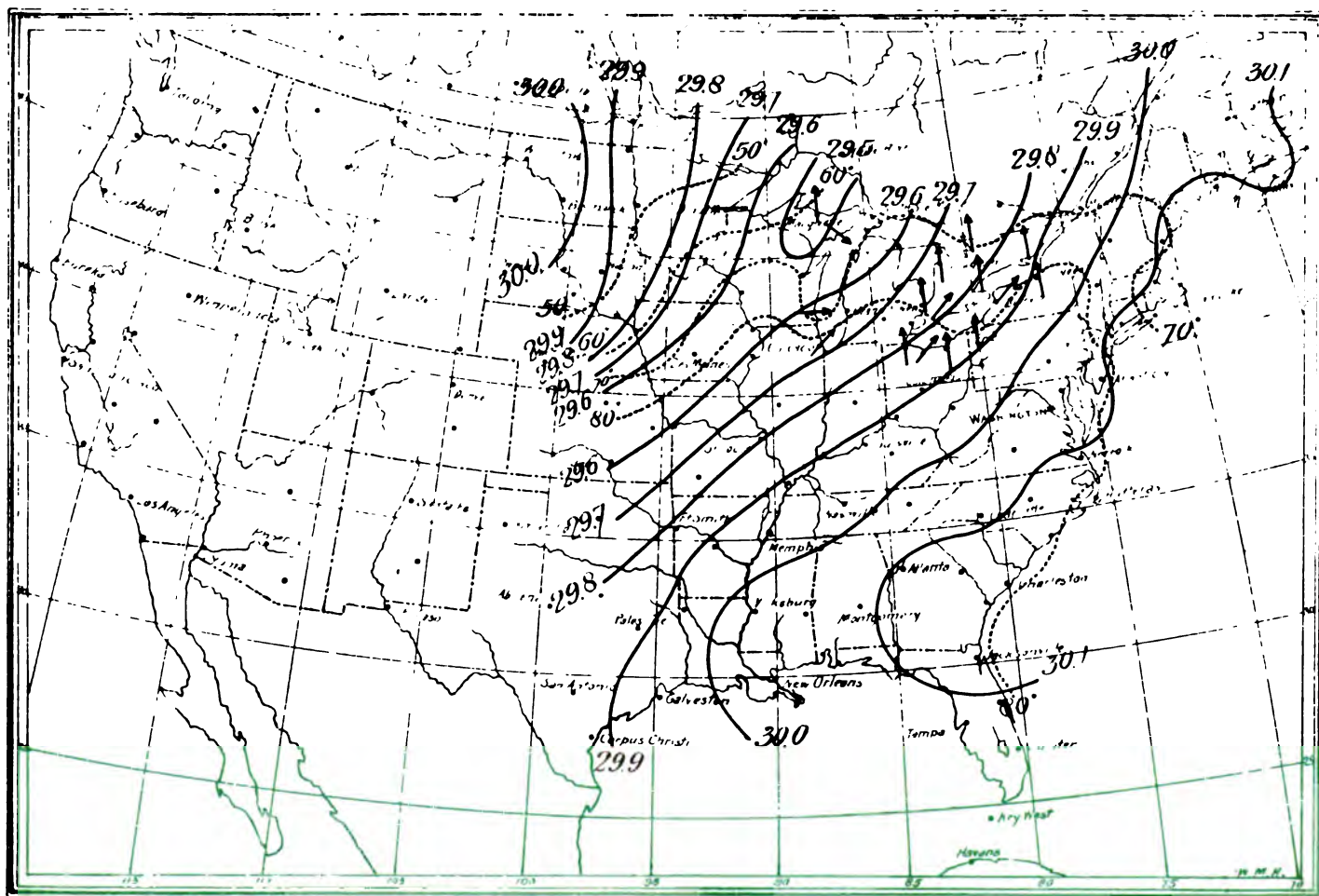


Chart CCCCII.

September 20, 1878—7:35 a. m.

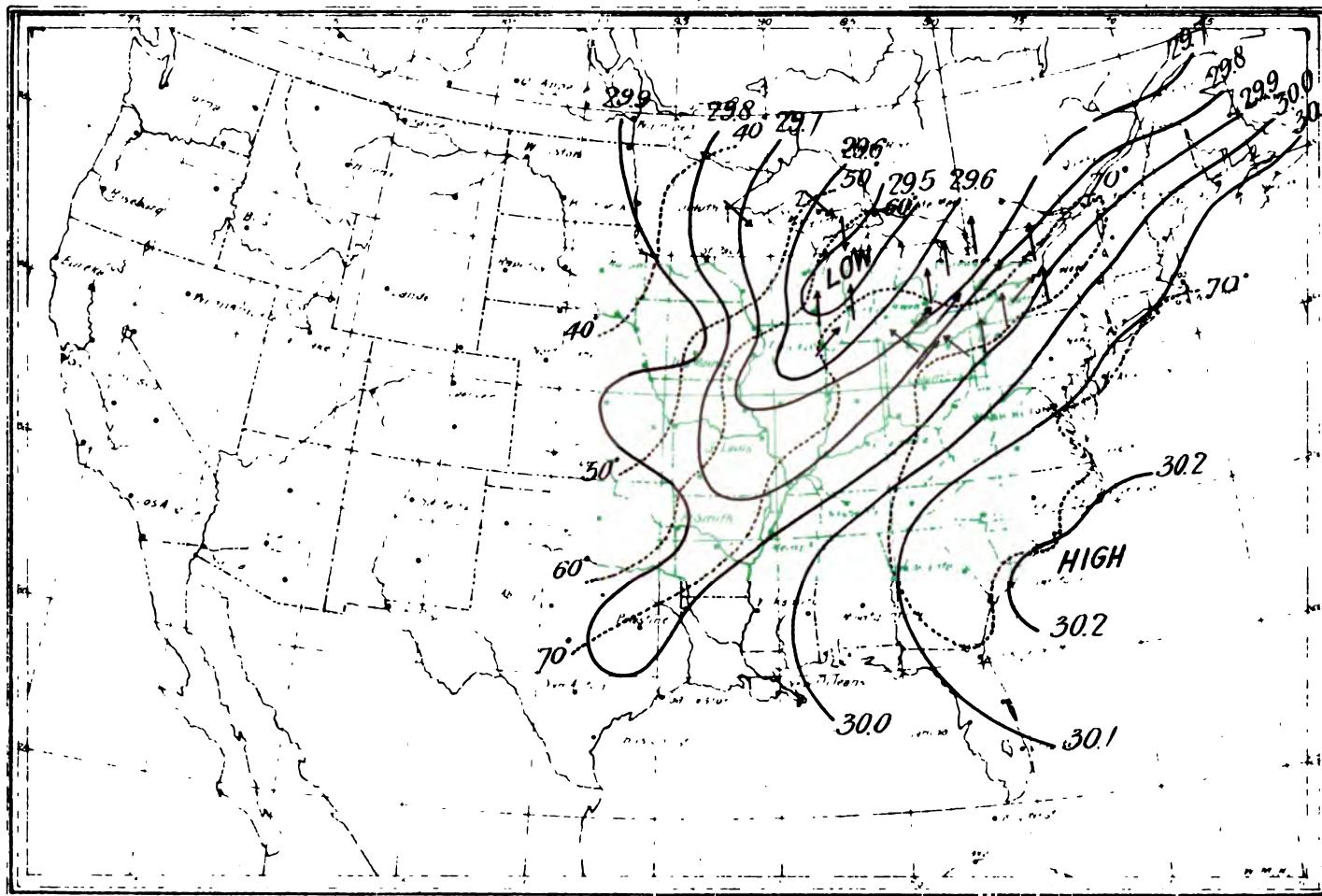


Chart CCCCII.

September 20, 1878—4:35 p. m.

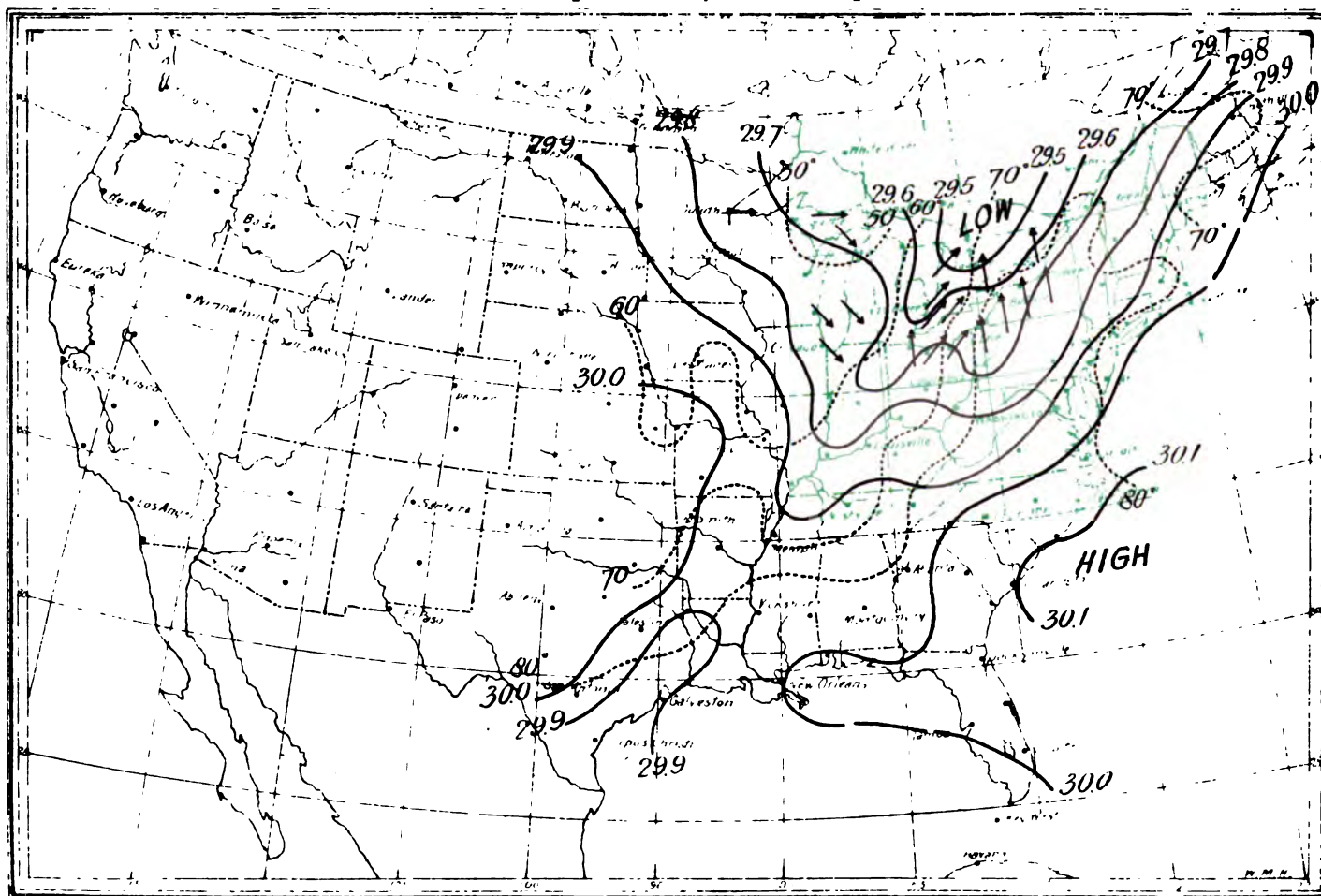


Chart 0000LIII.

September 2, 1879—7:35 a. m.

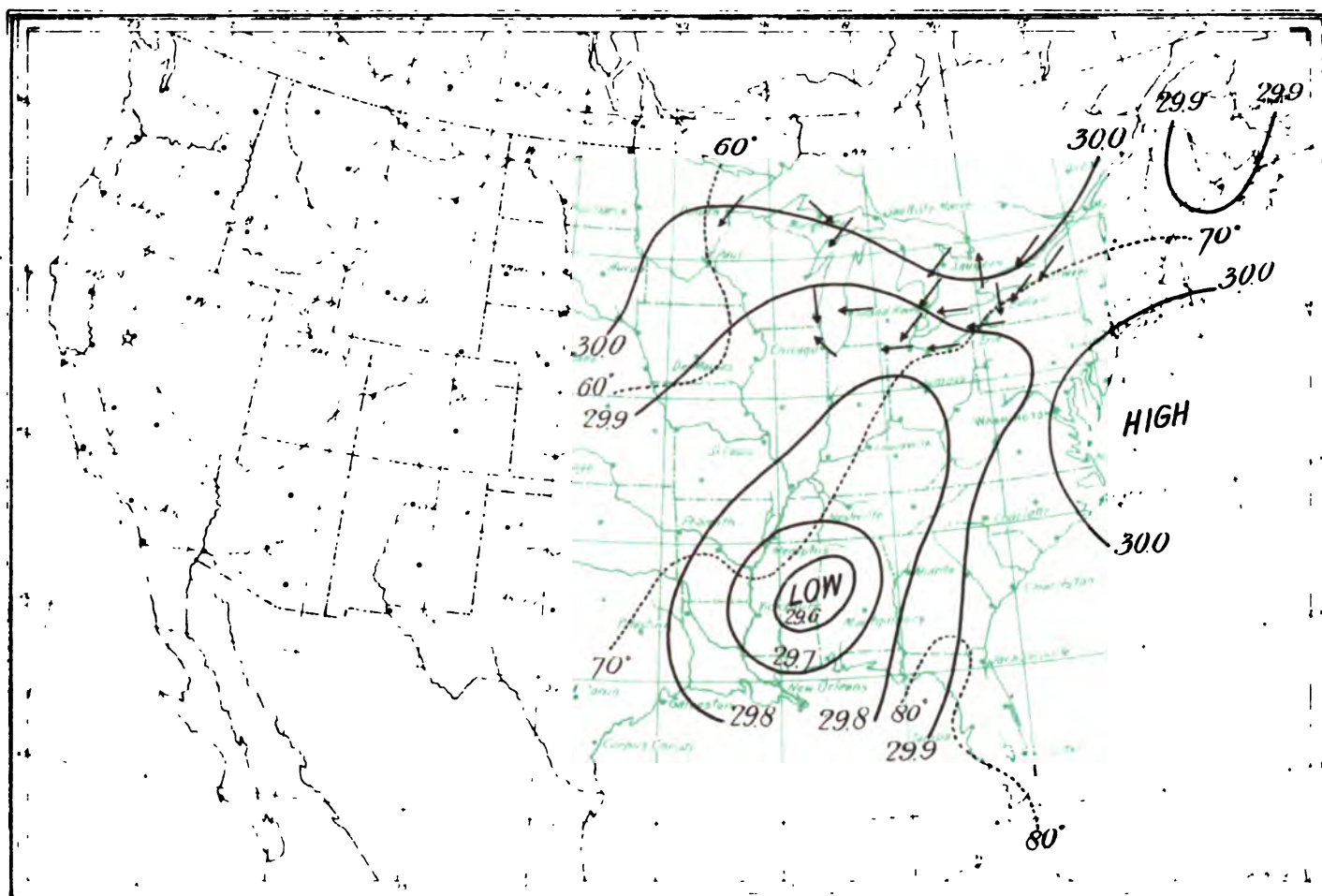


Chart 0000LIV.

September 2, 1879—4:35 p. m.

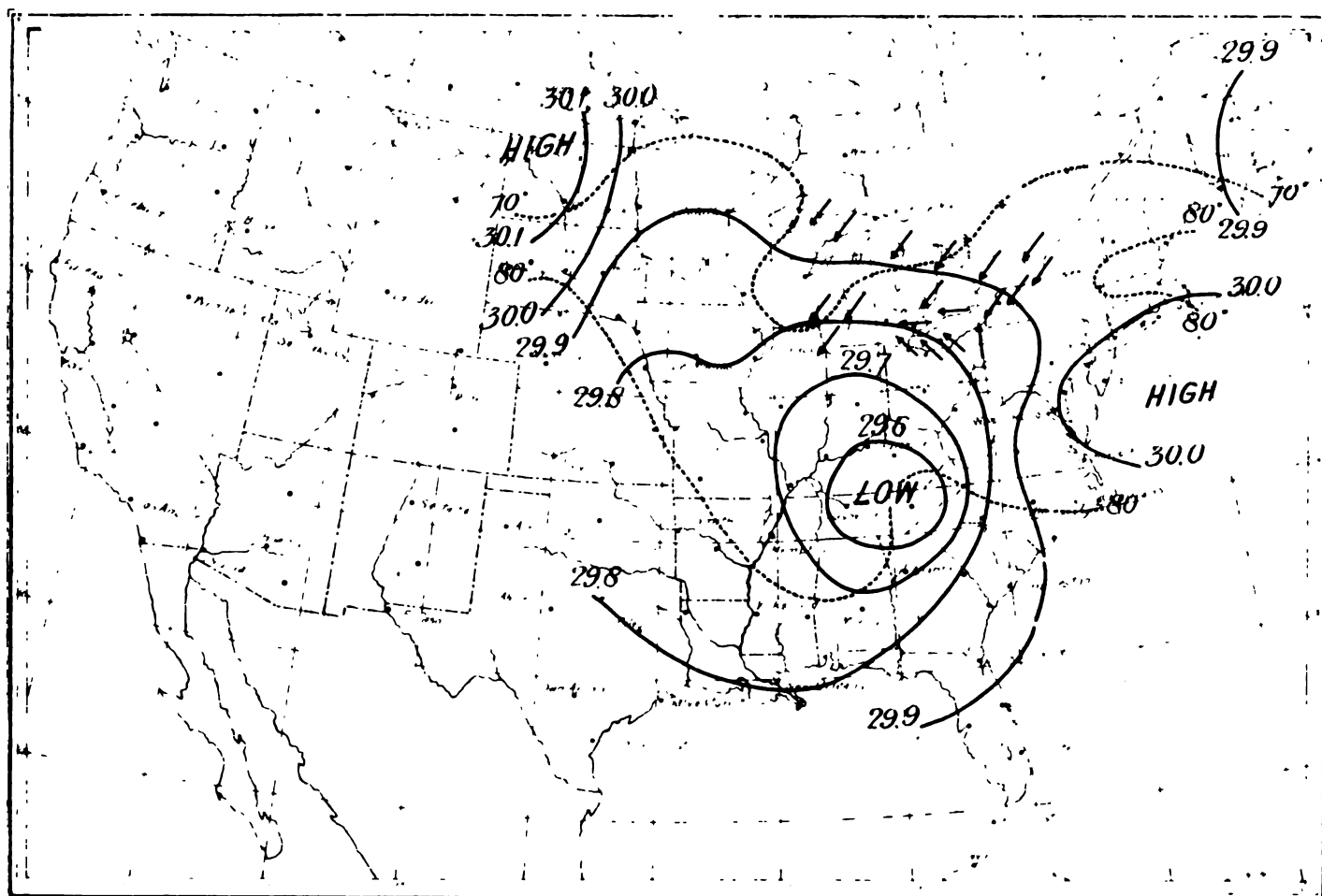


Chart CCCCCLV.

September 3, 1879—7:35 a. m.

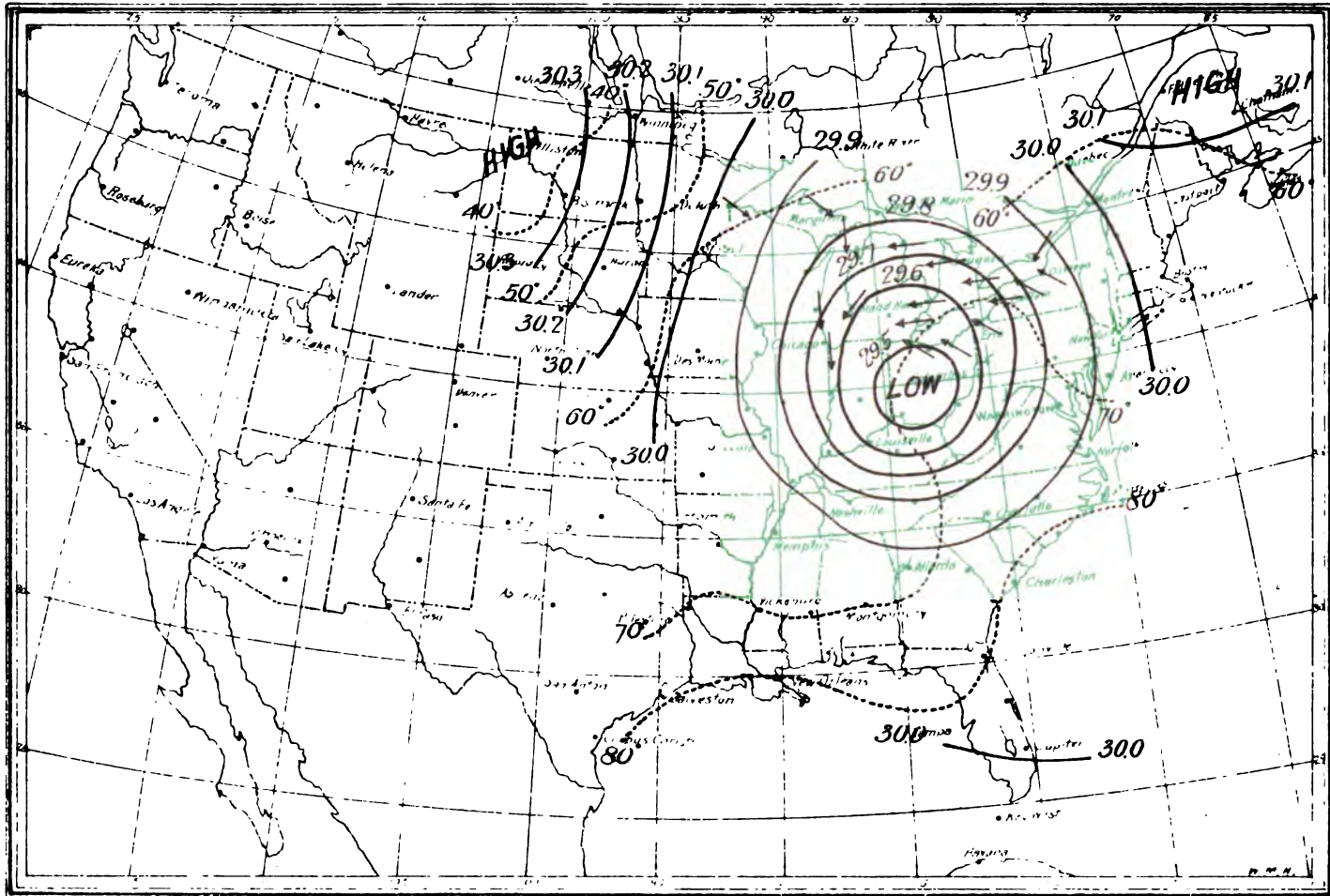


Chart CCCCCLVI.

September 3, 1879—4:35 p. m.

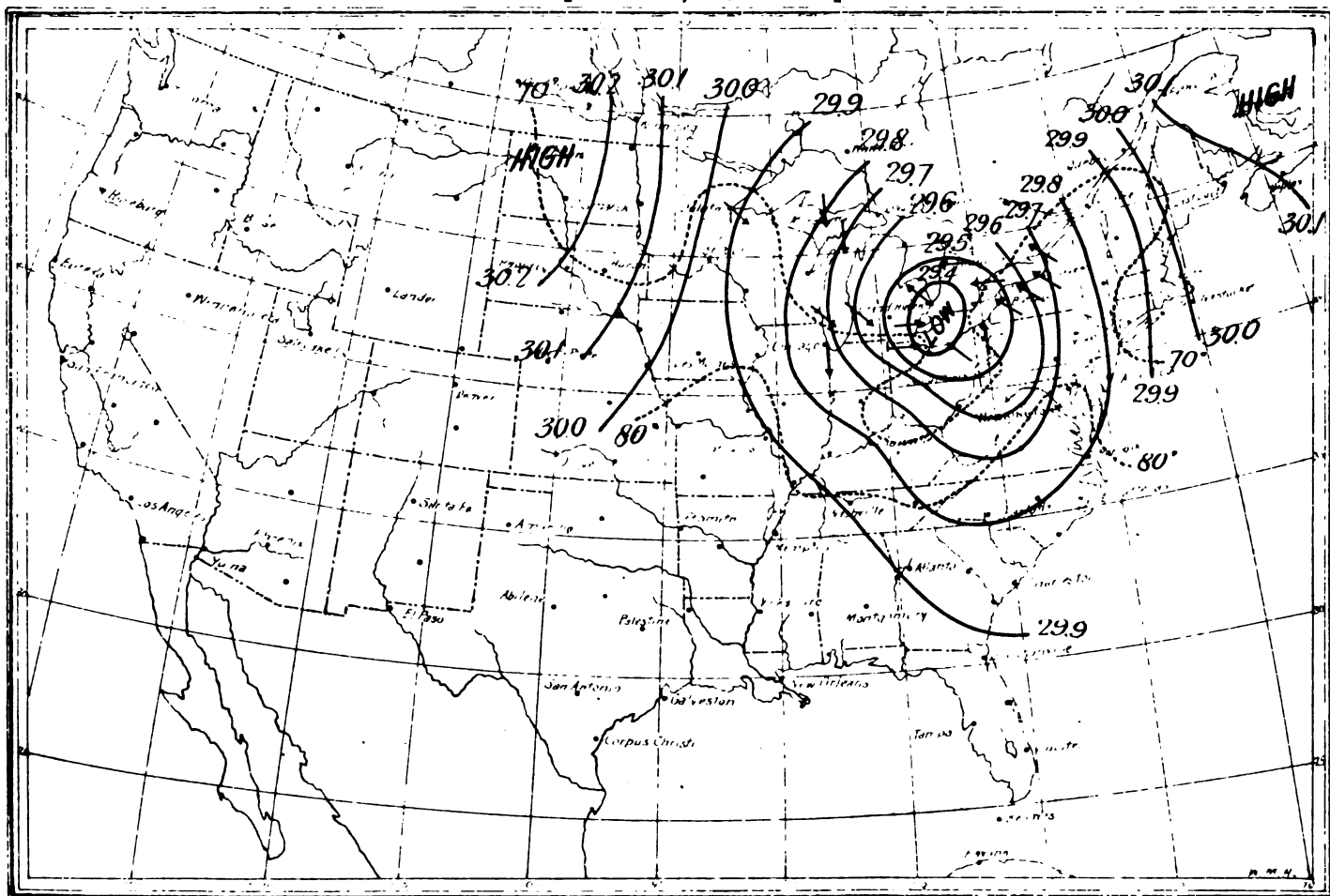


Chart 0000LVII

September 19, 1880—7 a. m.

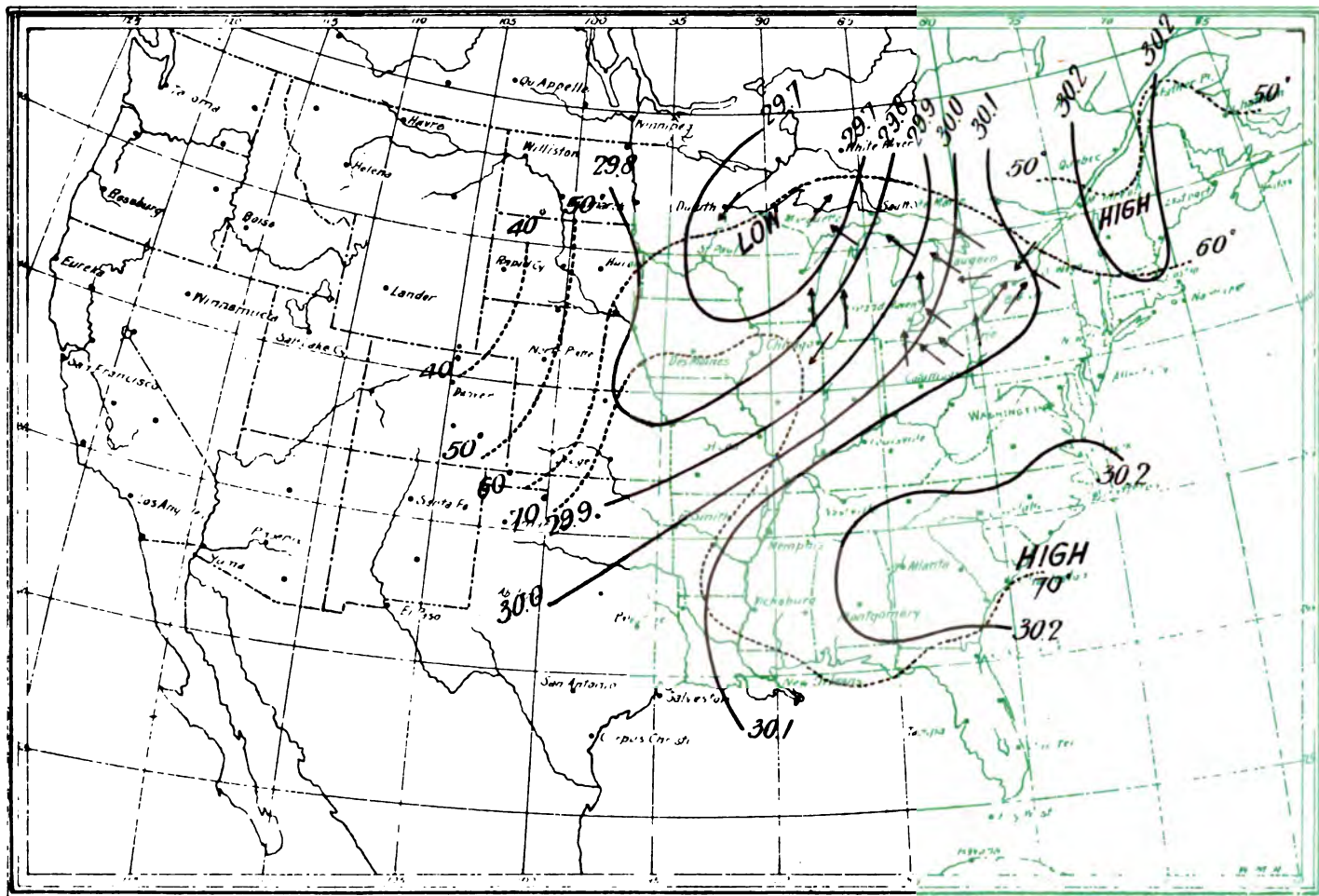


Chart 0000LVIII

September 19, 1880—8 p. m.

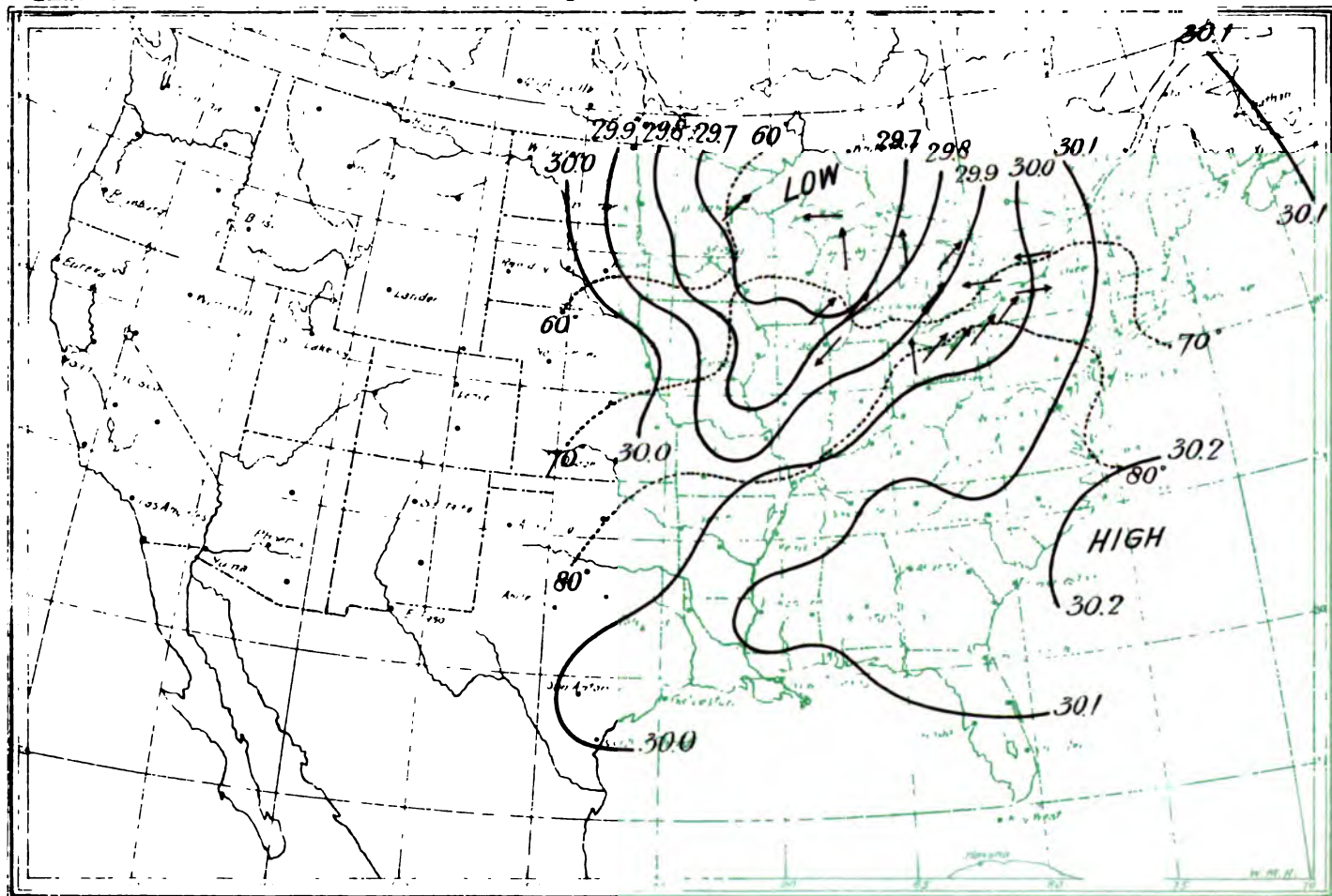


Chart CCCCIX.

September 20, 1880—7 a. m.

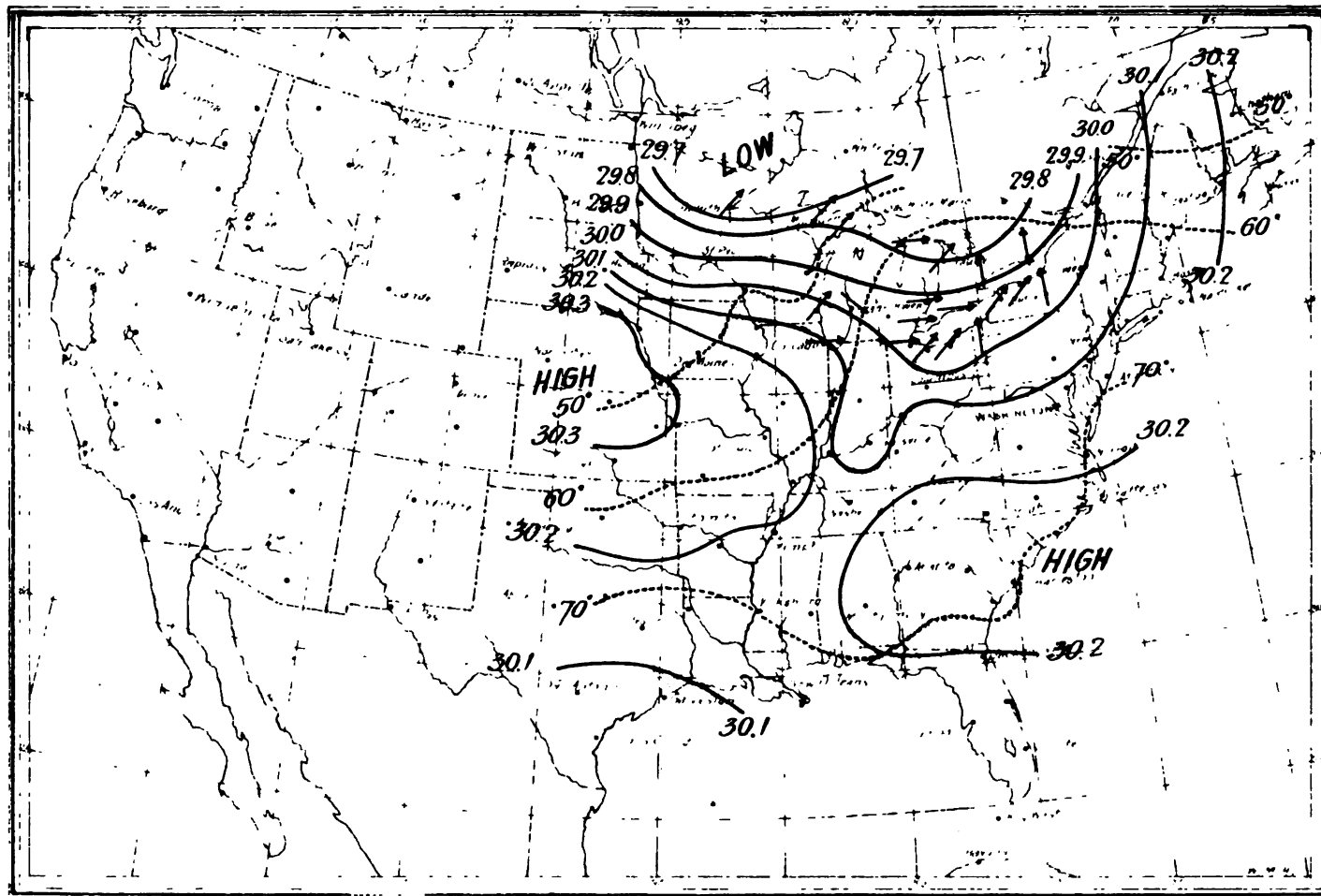


Chart CCCCIX.

September 20, 1880—3 p. m.

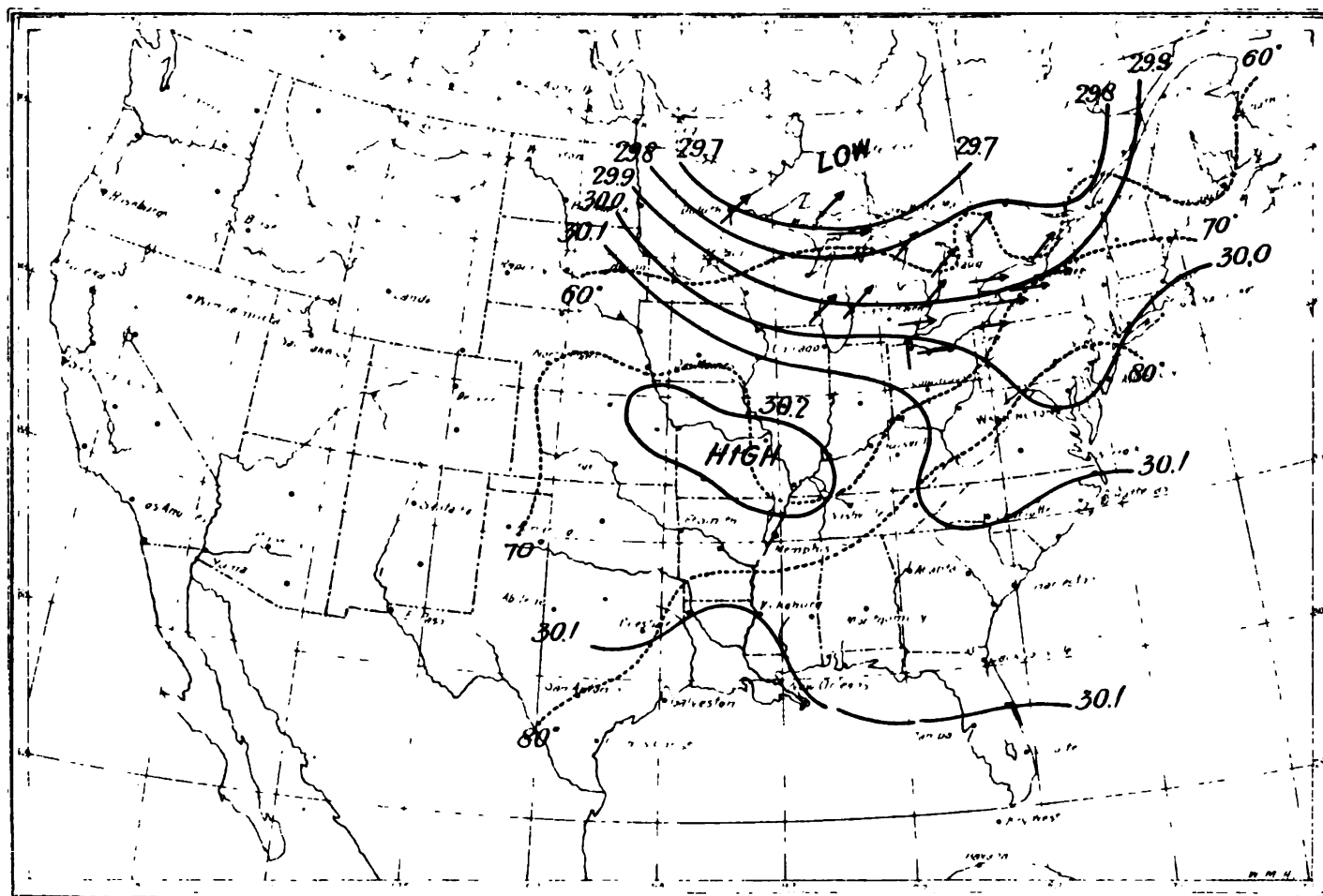


Chart CCCCXLXI

September 27, 1880—7 a. m.

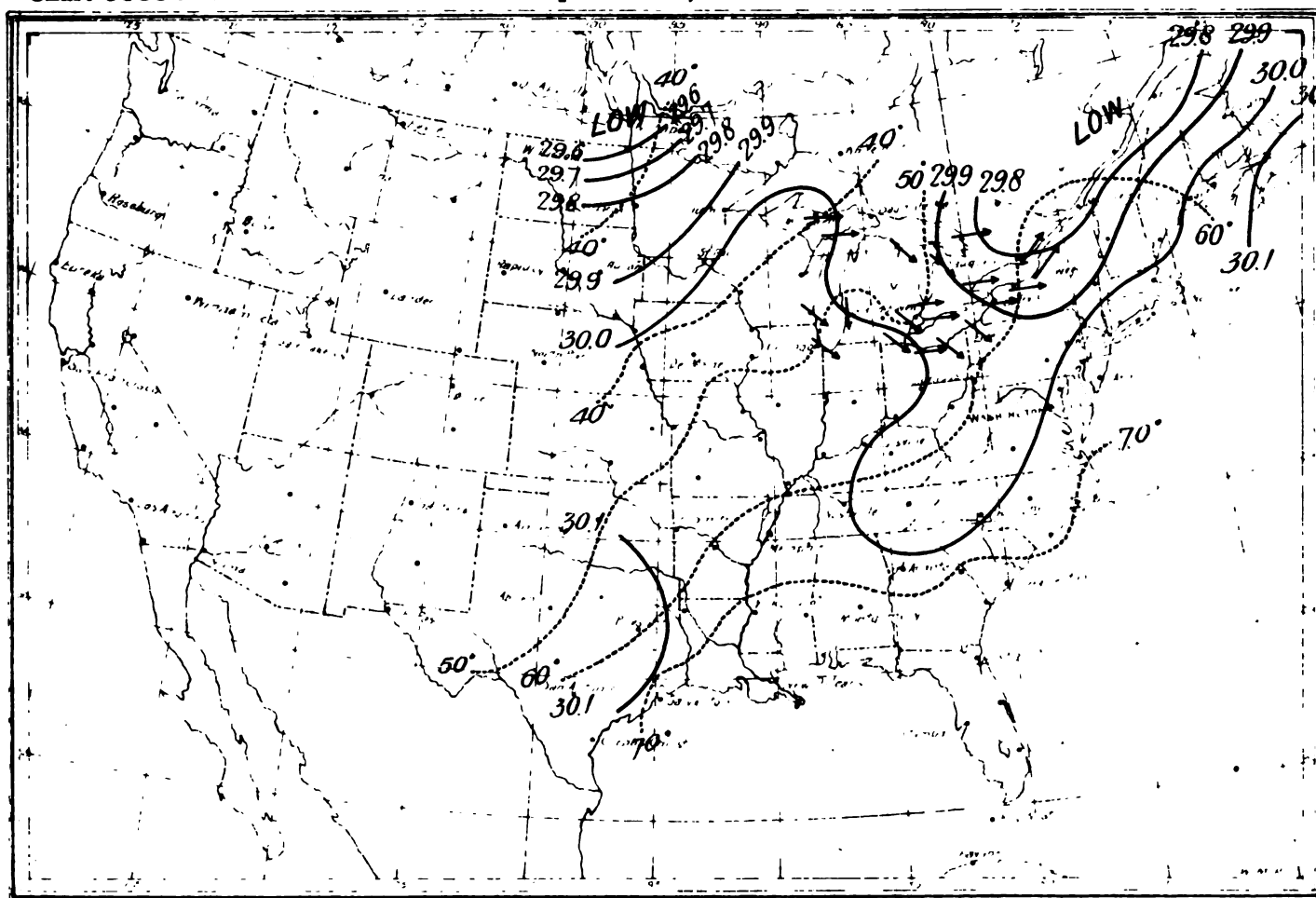


Chart CCCCXLXII

September 27, 1880—3 p. m.

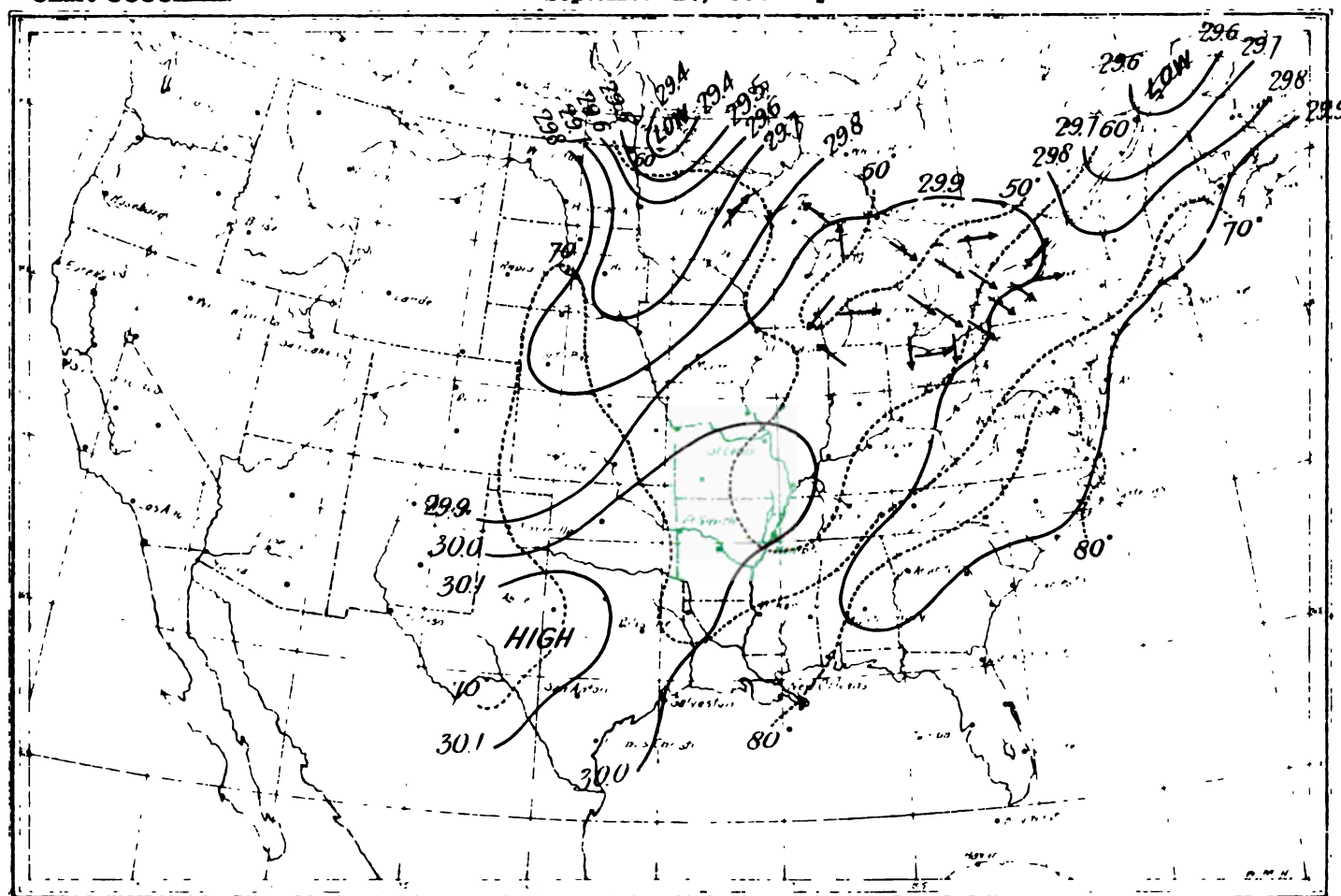


Chart CCCCXLIII.

September 28, 1880—7 a. m.

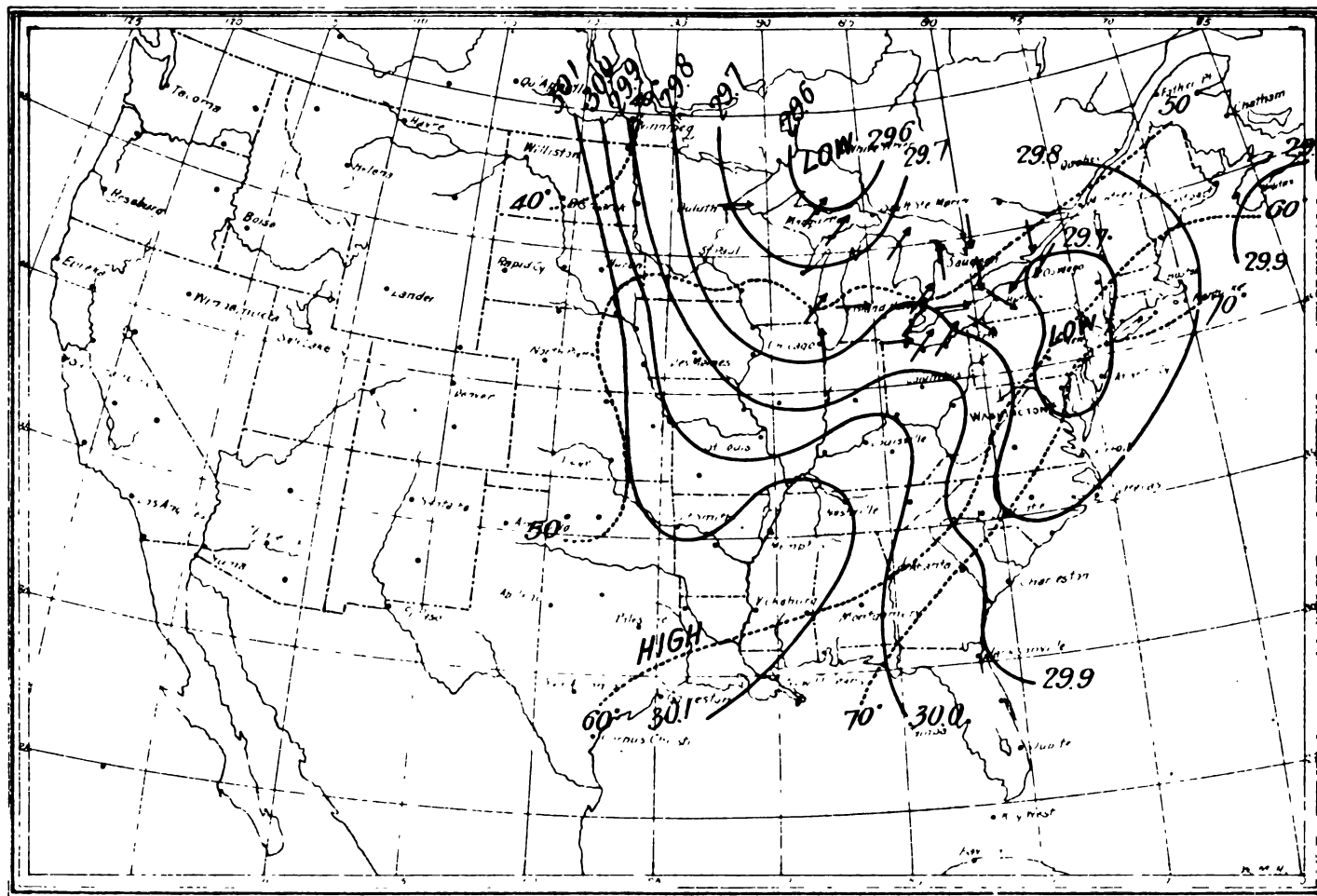


Chart CCCCXLIV.

September 28, 1880—8 p. m.

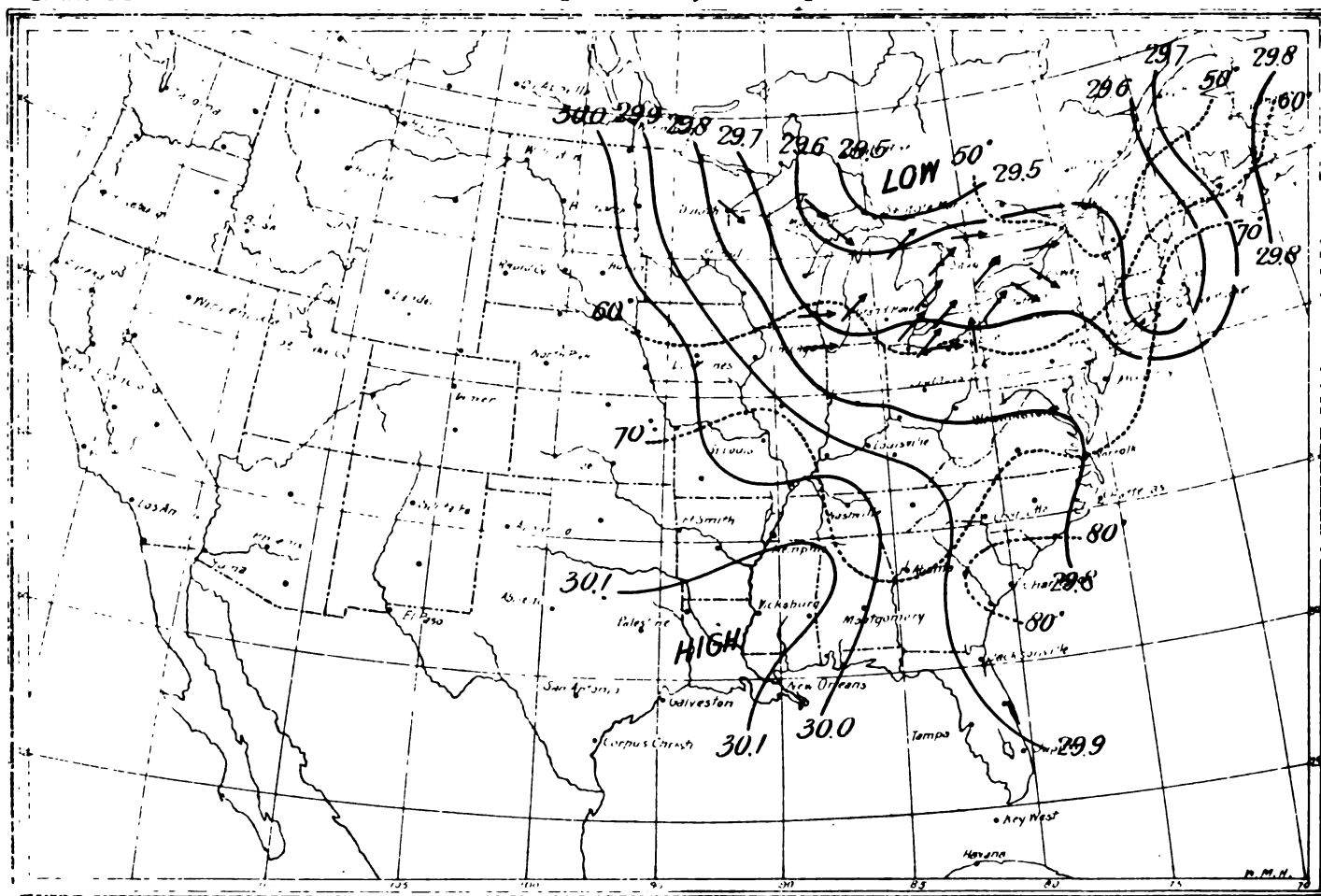


Chart 0000LXV.

September 9, 1881—7 a. m.

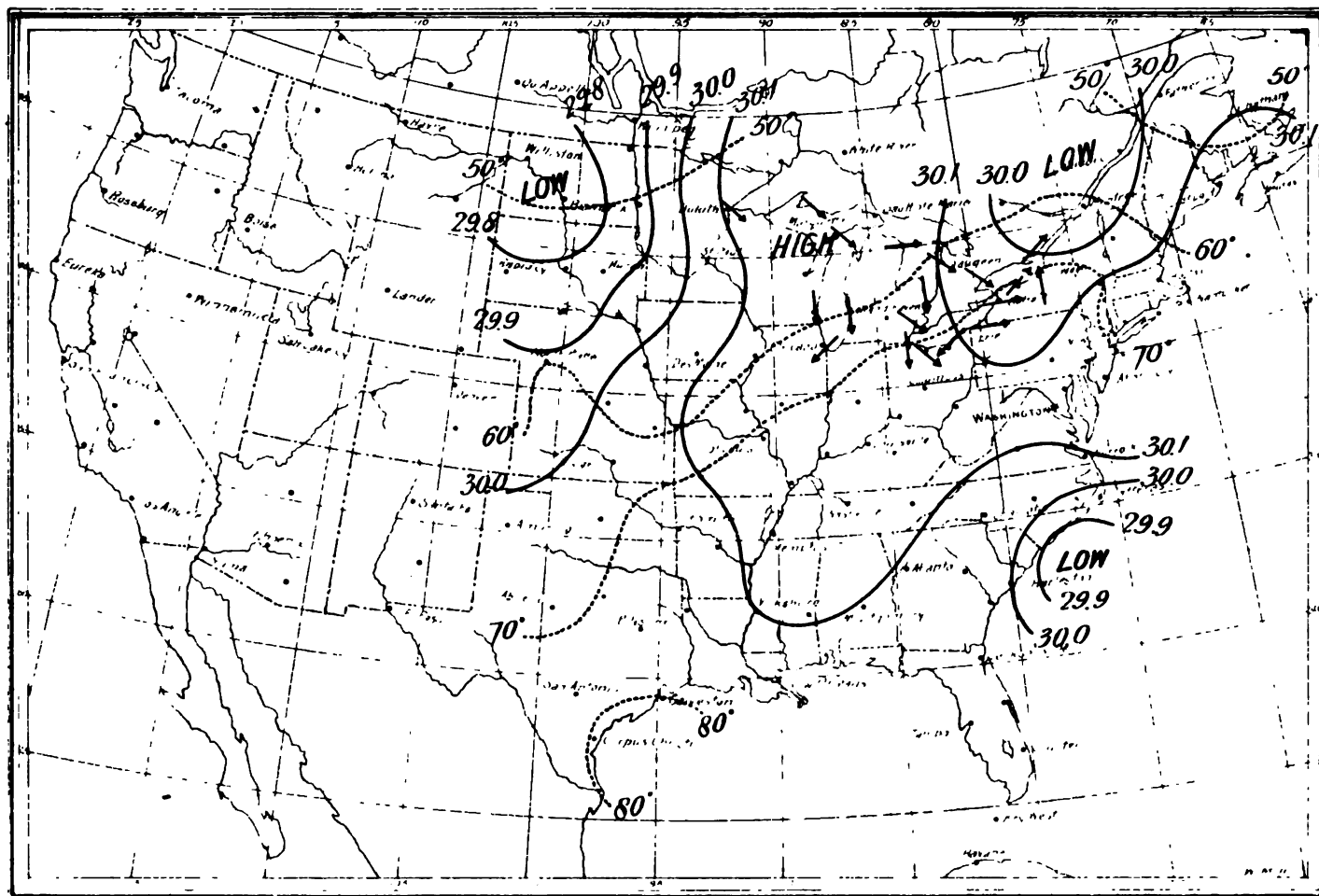
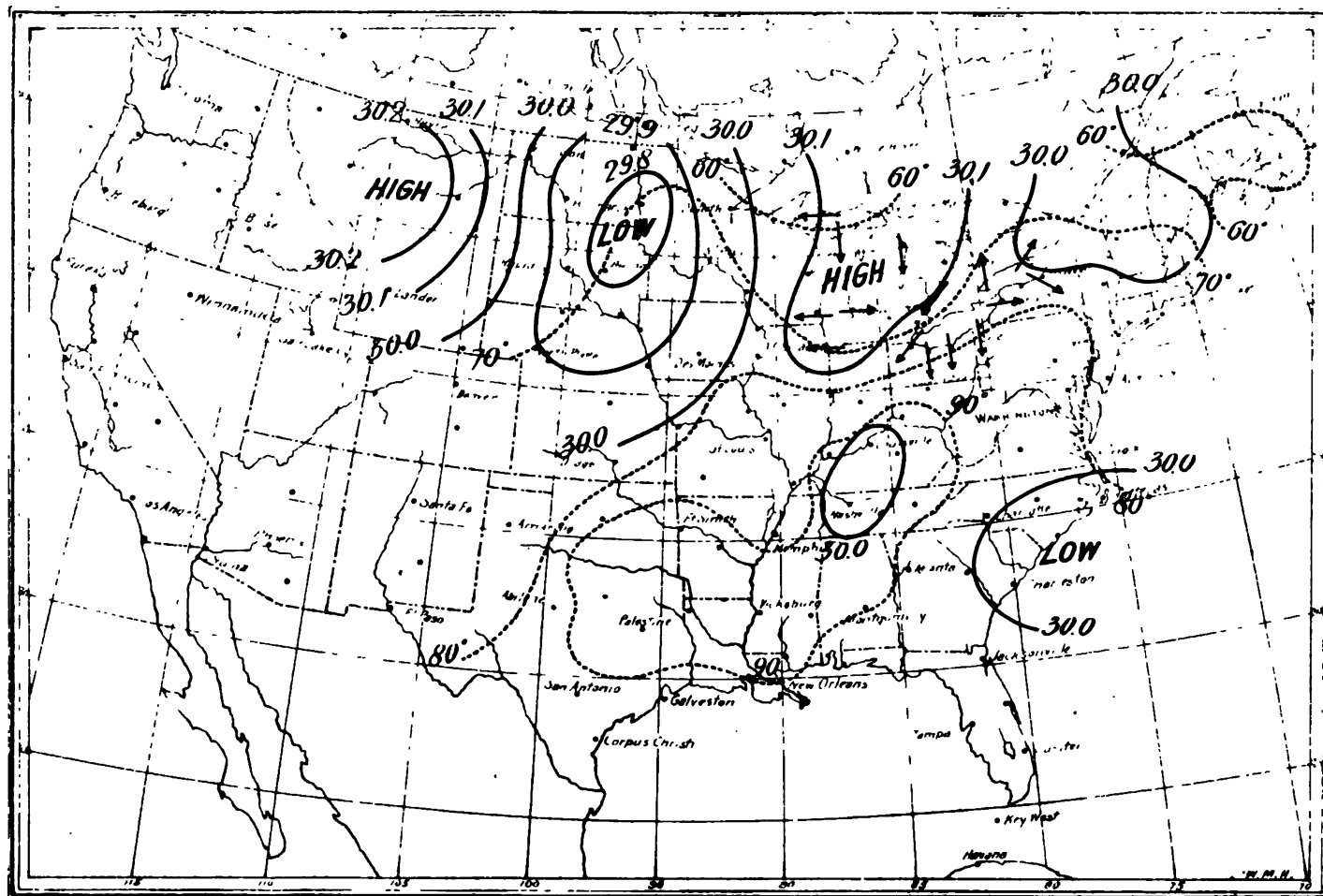


Chart 0000LXVI.

September 9, 1881—3 p. m.



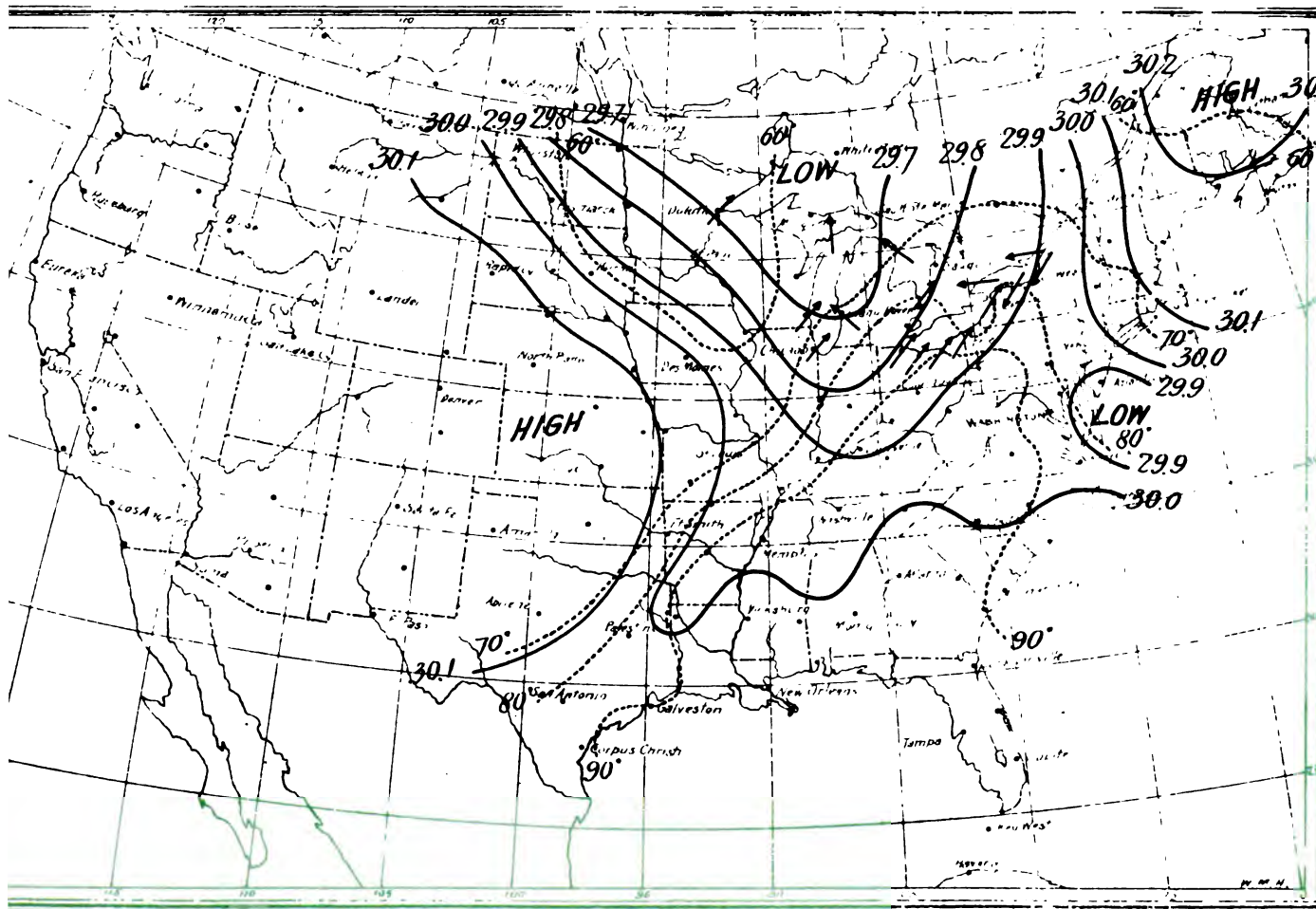
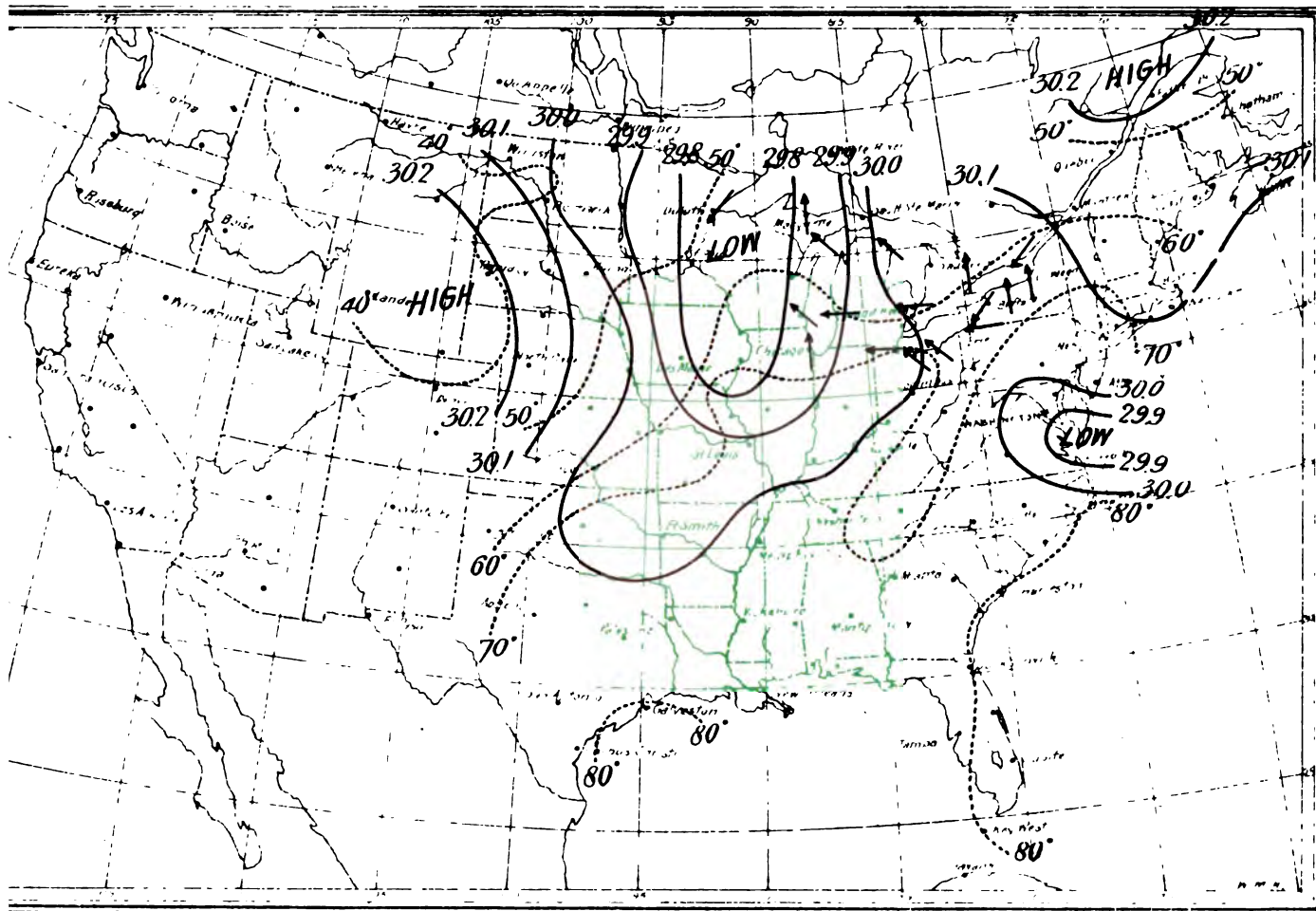


Chart 0000LXIX.

September 28, 1881—7 a. m.

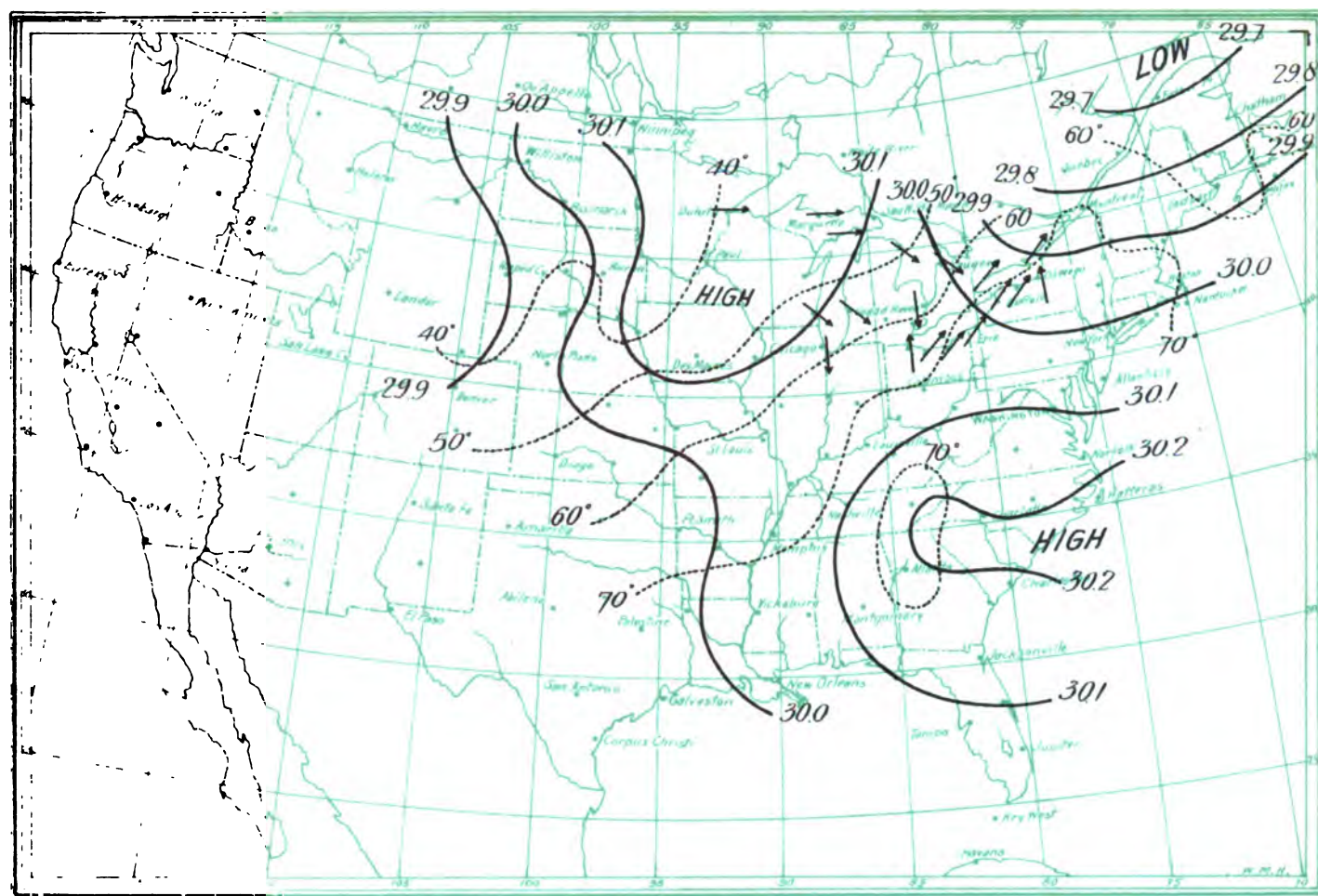
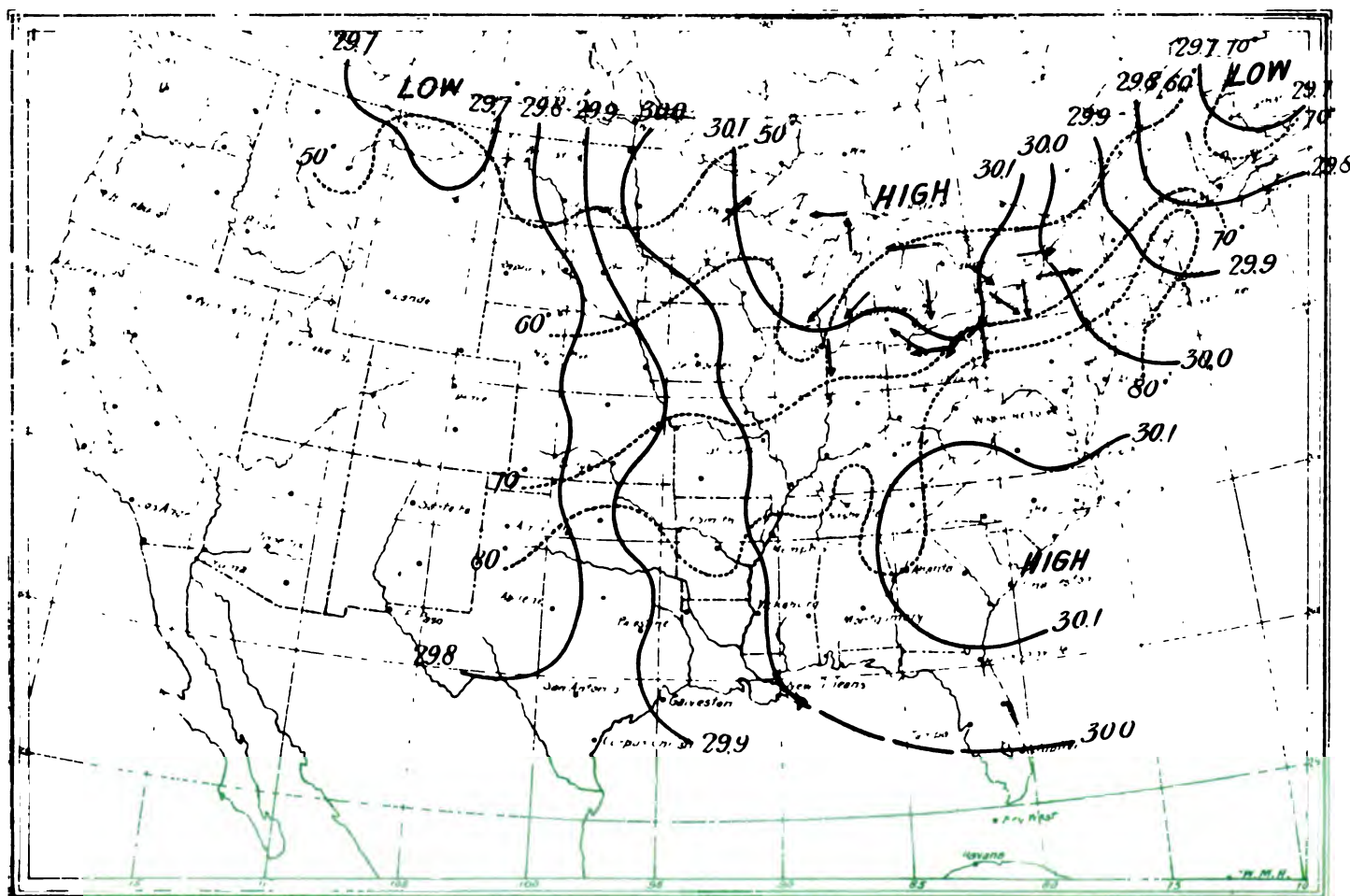


Chart 0000LXX.

September 28, 1881—8 p. m.



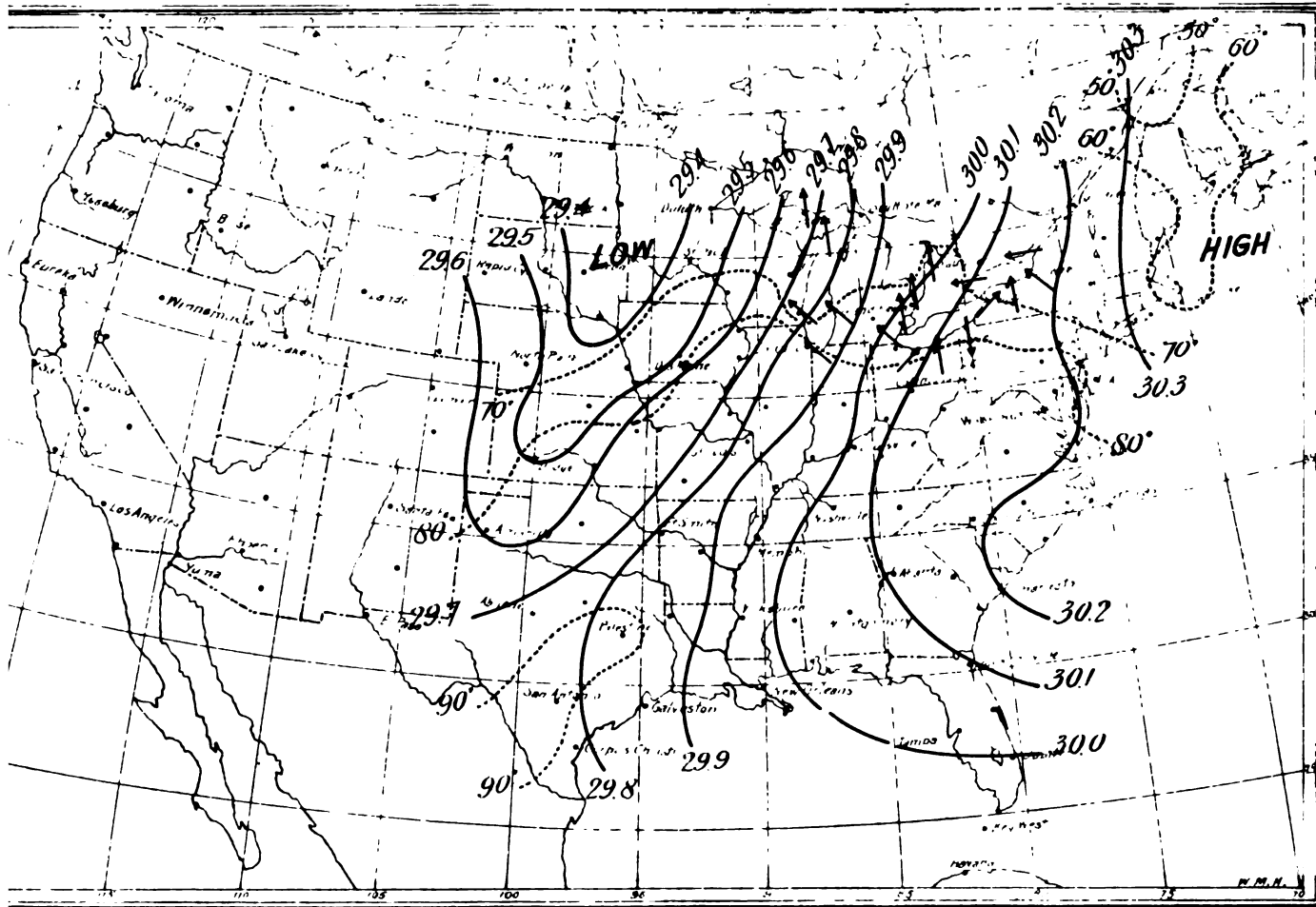
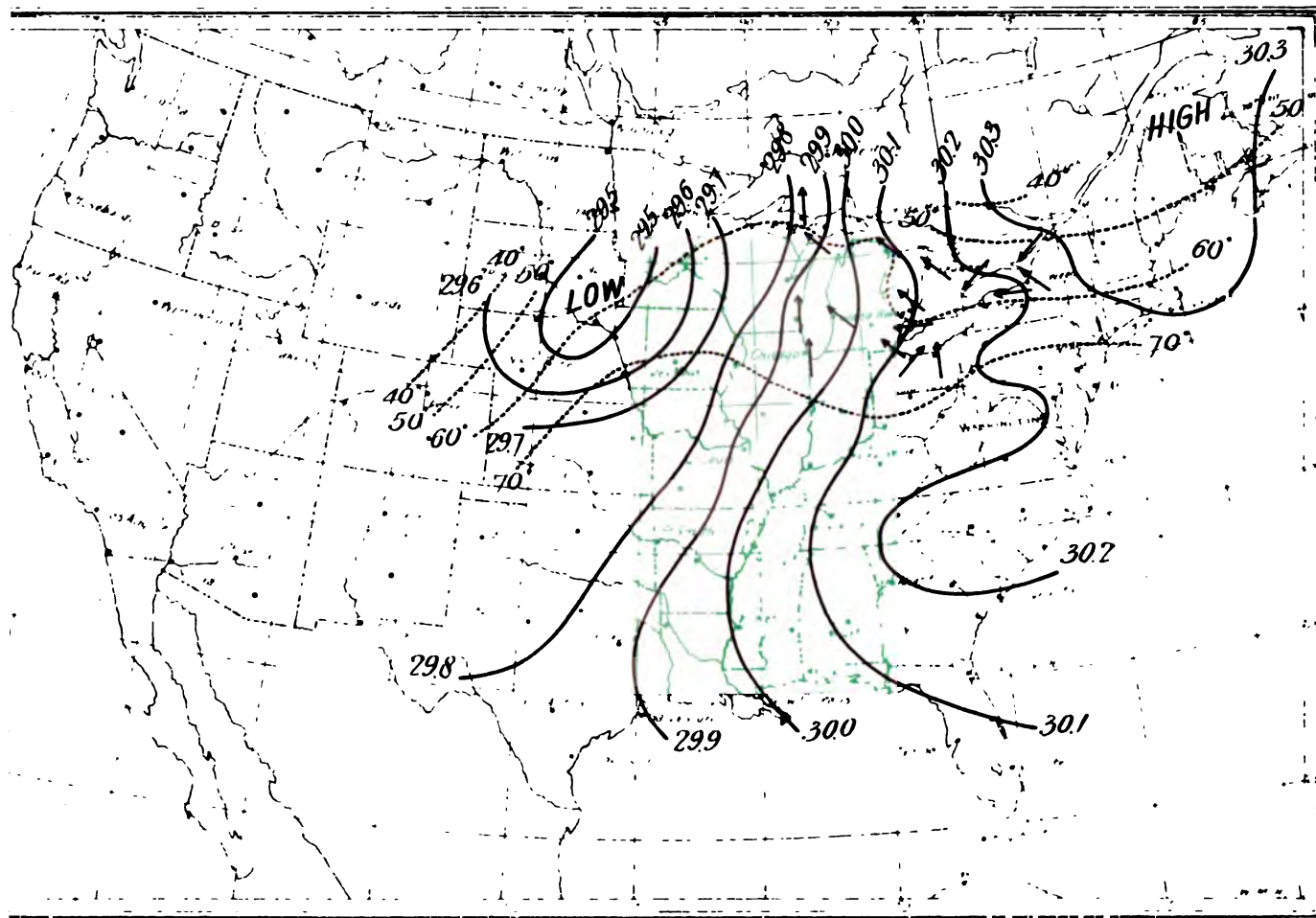


Chart 0000LXXIII.

September 13, 1882—7 a. m.

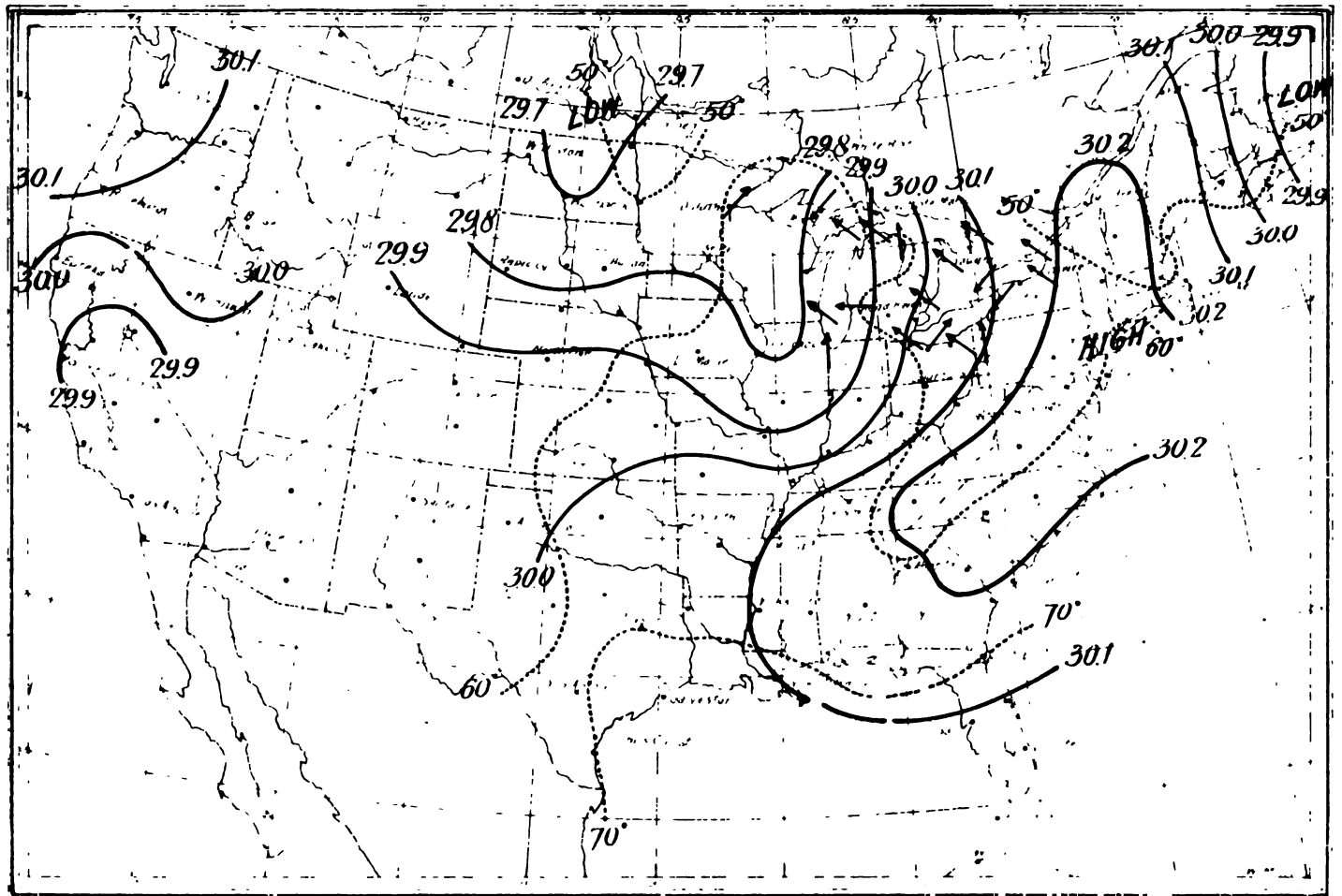


Chart 0000LXXIV.

September 13, 1882—3 p. m.

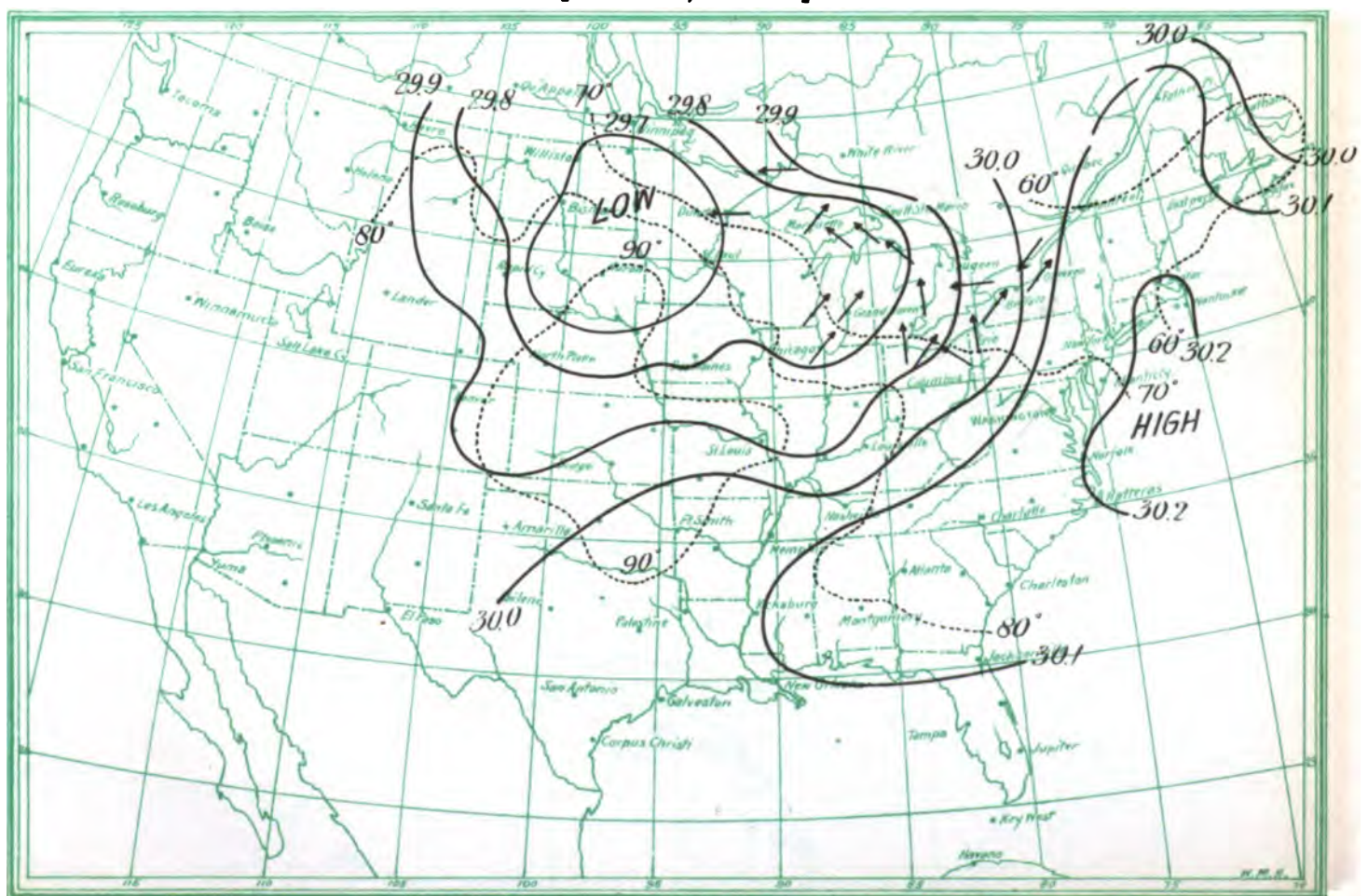


Chart CCCCXXV.

September 14, 1882—7 a. m.

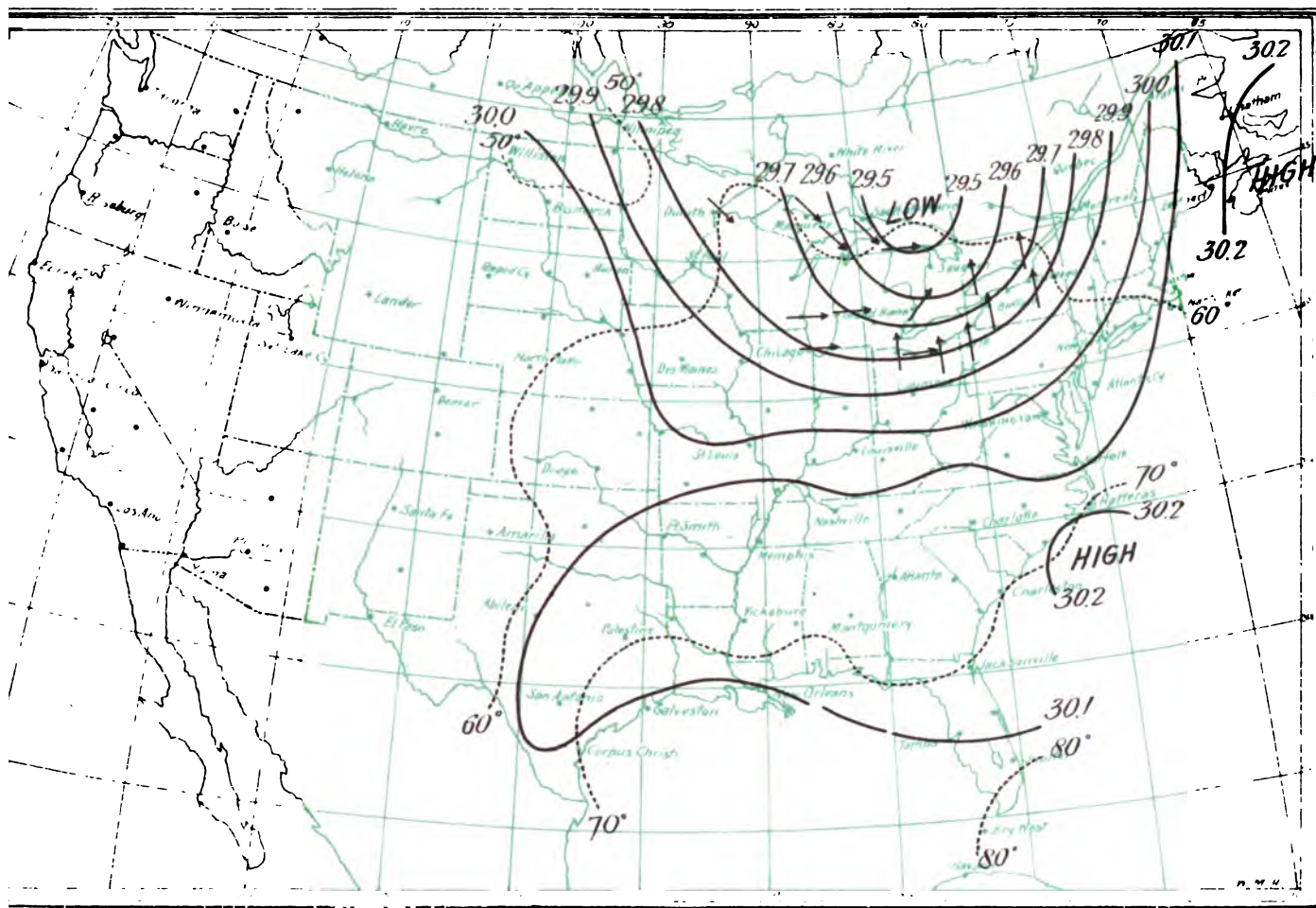


Chart CCCCXXVI.

September 14, 1882—8 p. m.

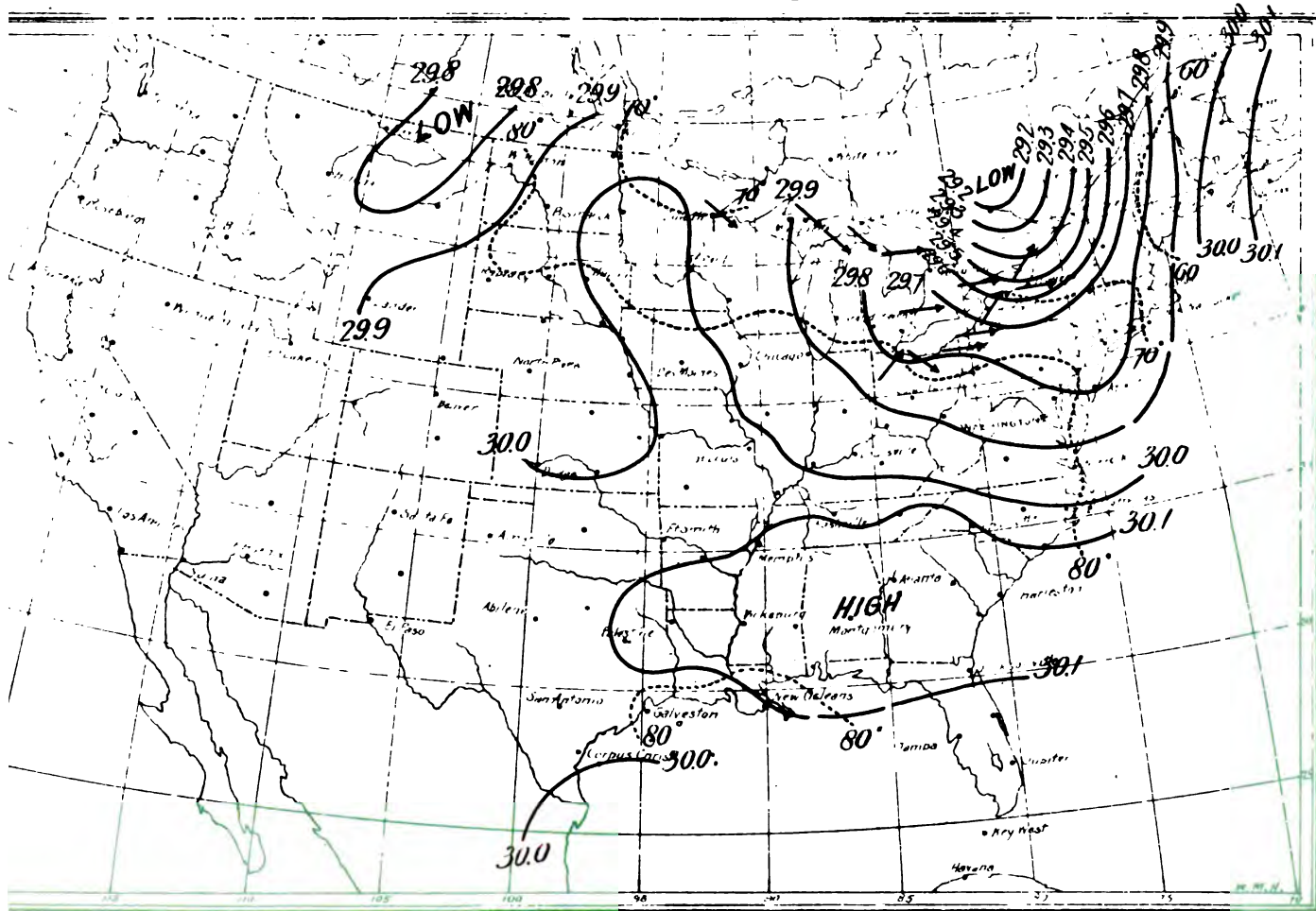


Chart CCCCXXVII.

September 23, 1888—7 a. m.

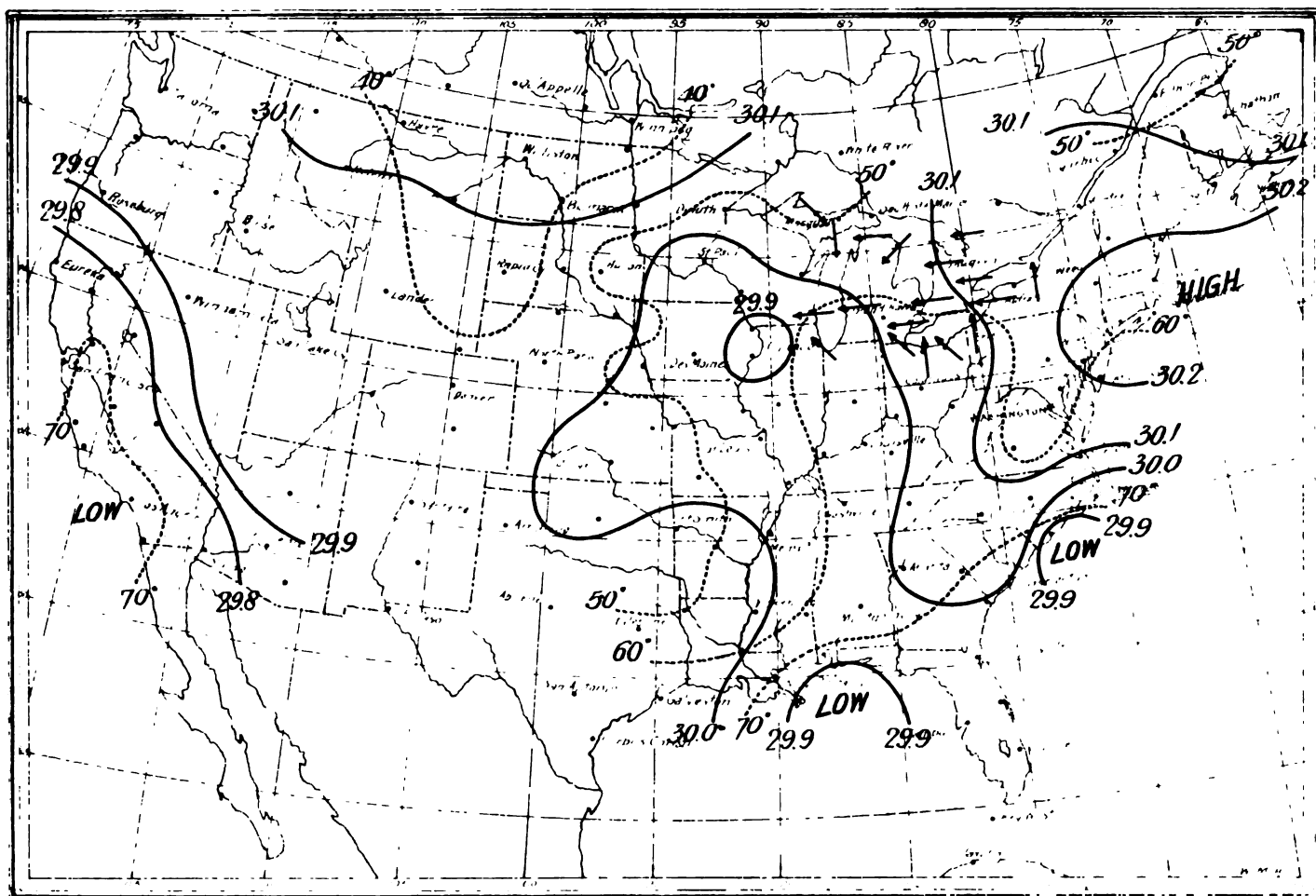


Chart CCCCXXVIII.

September 23, 1888—3 p. m.

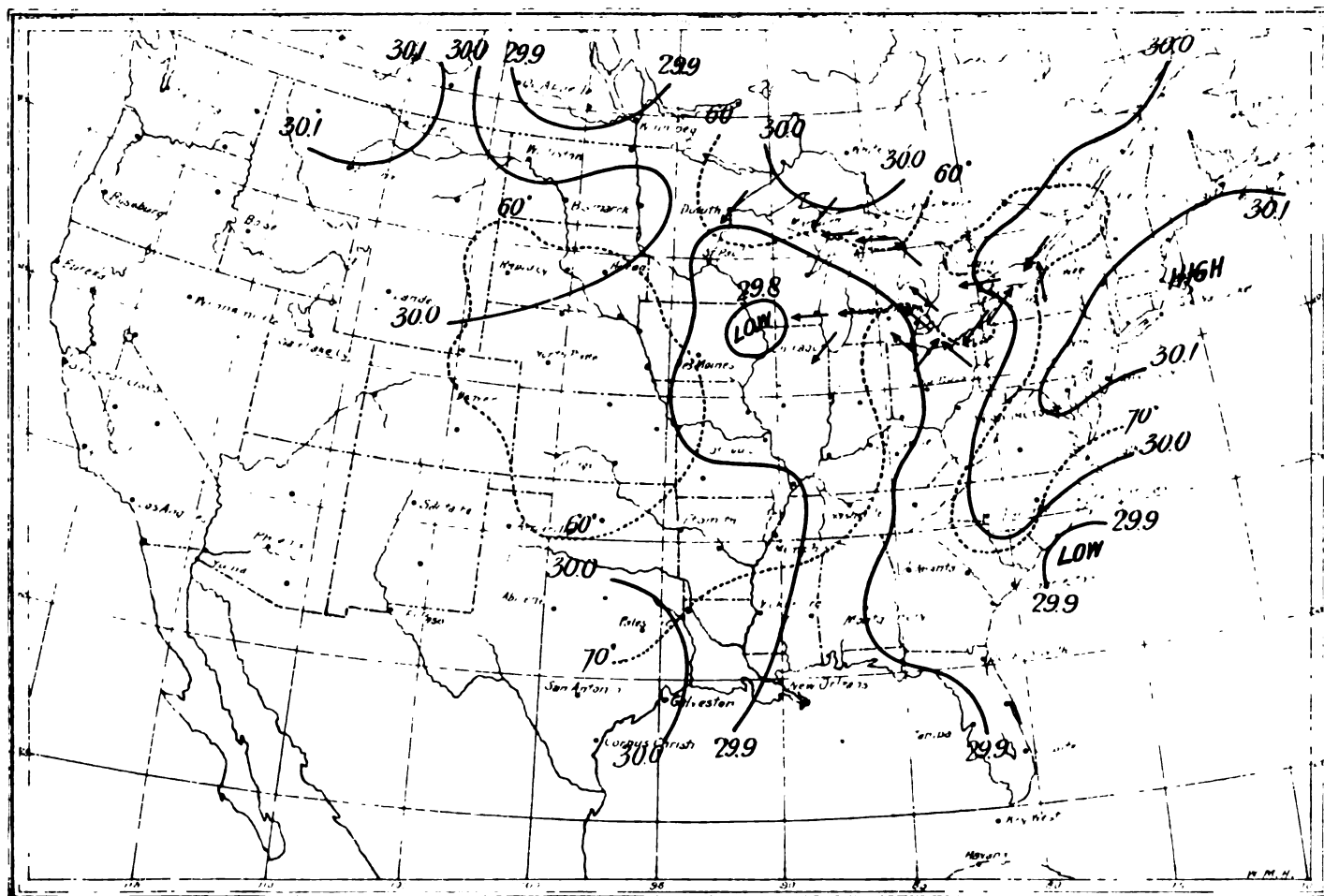


Chart CCCCXXIX.

September 24, 1888—7 a. m.

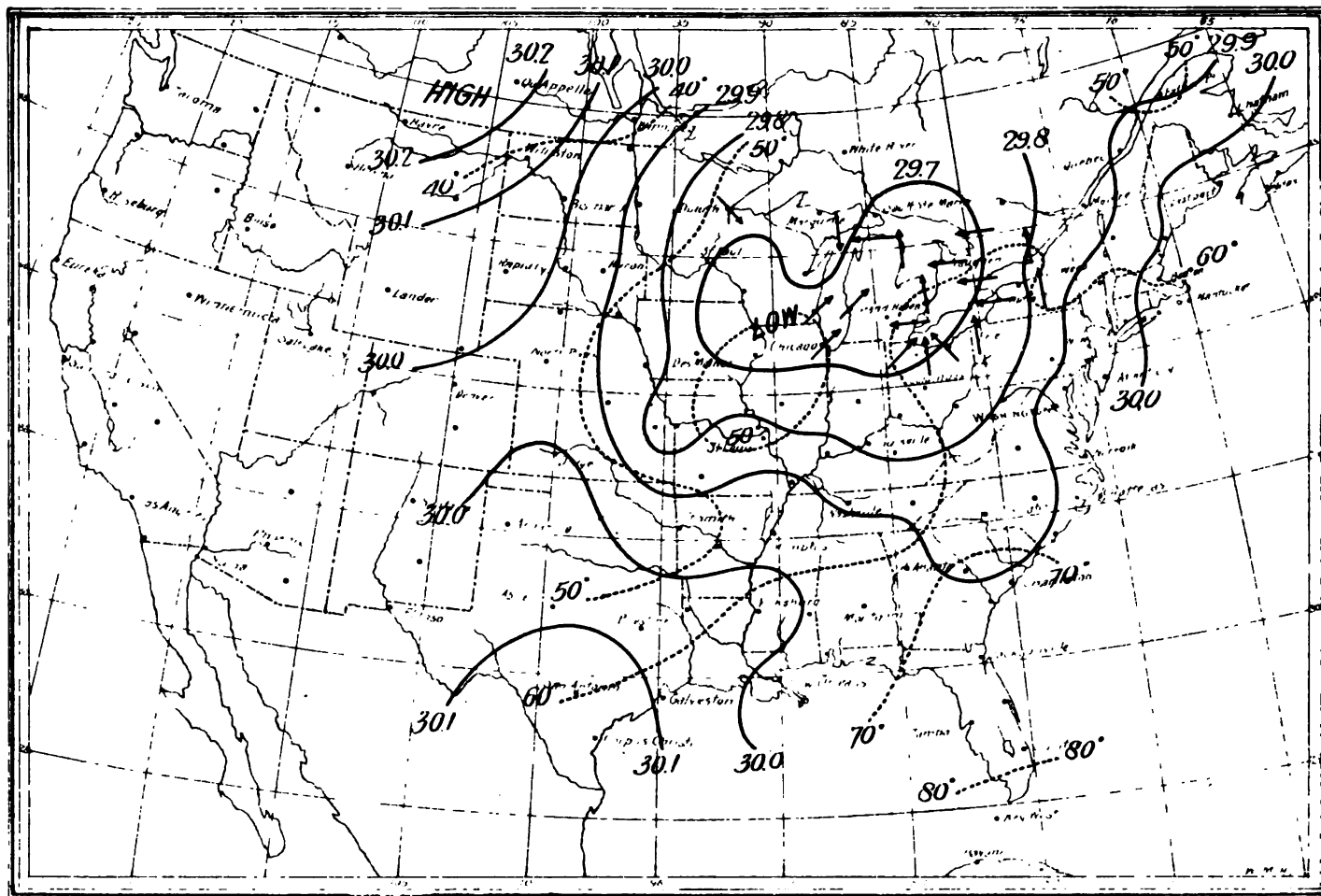


Chart CCCCXXX.

September 24, 1888—3 p. m.

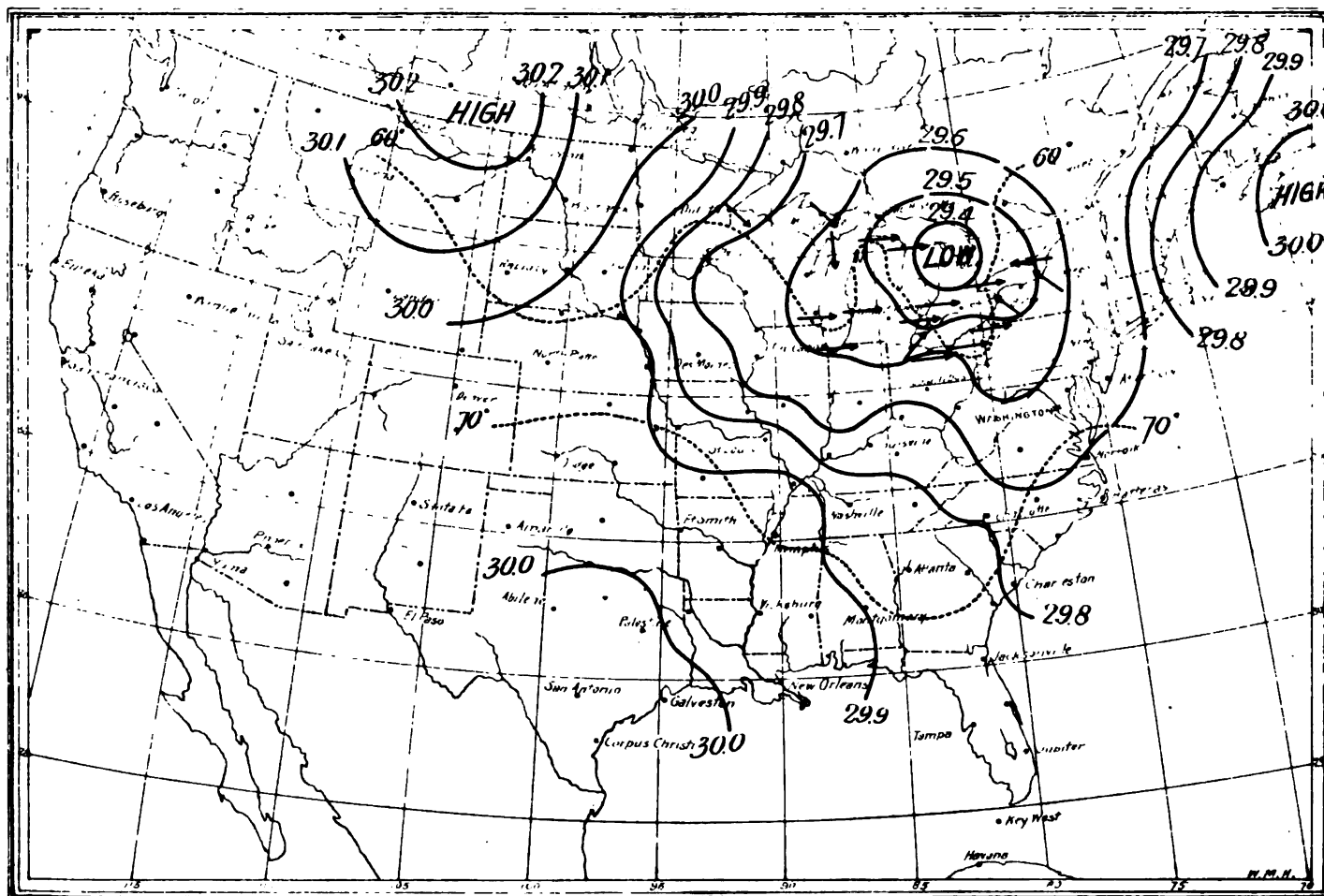


Chart CCCCXXXI.

September 23, 1884—7 a. m.

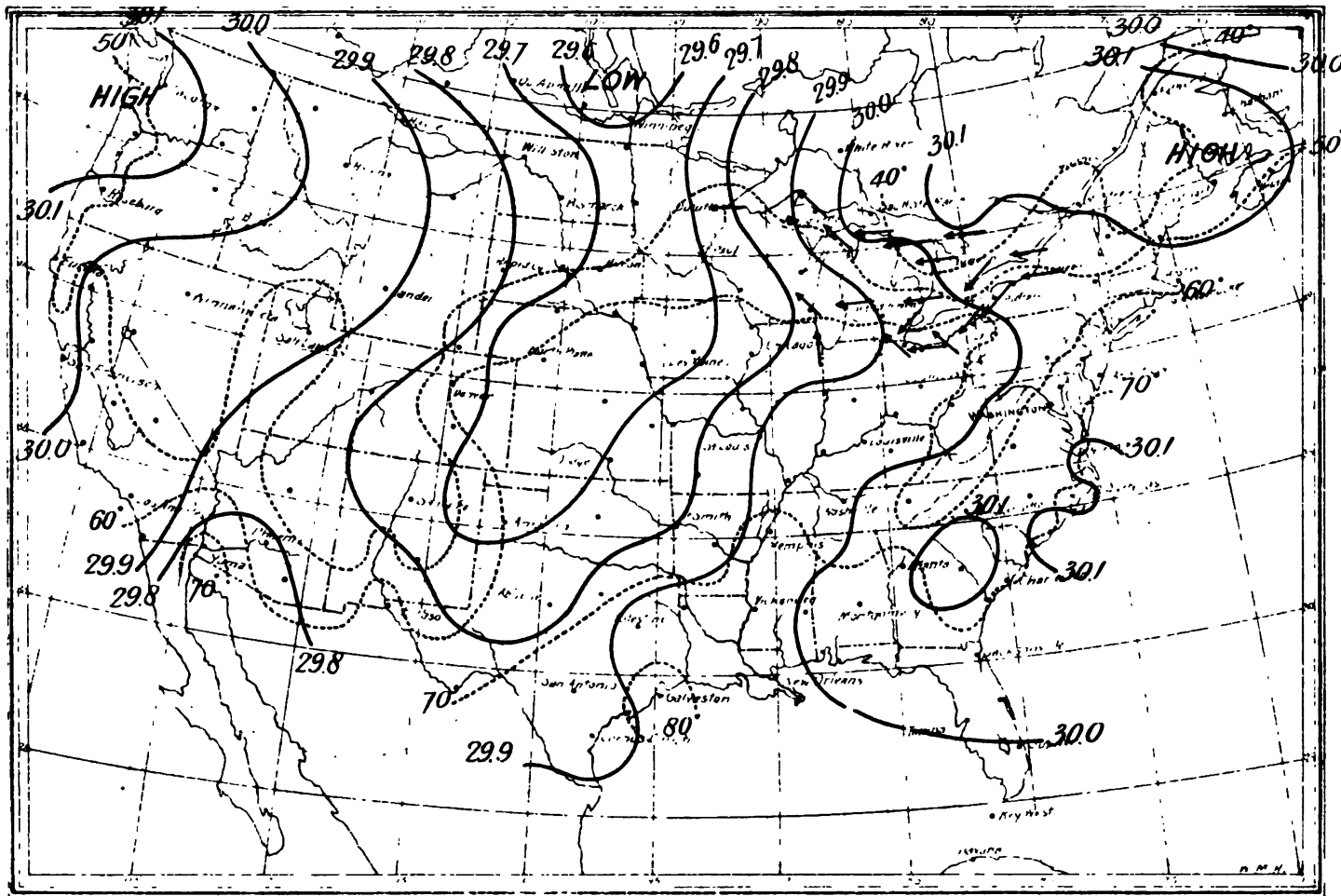
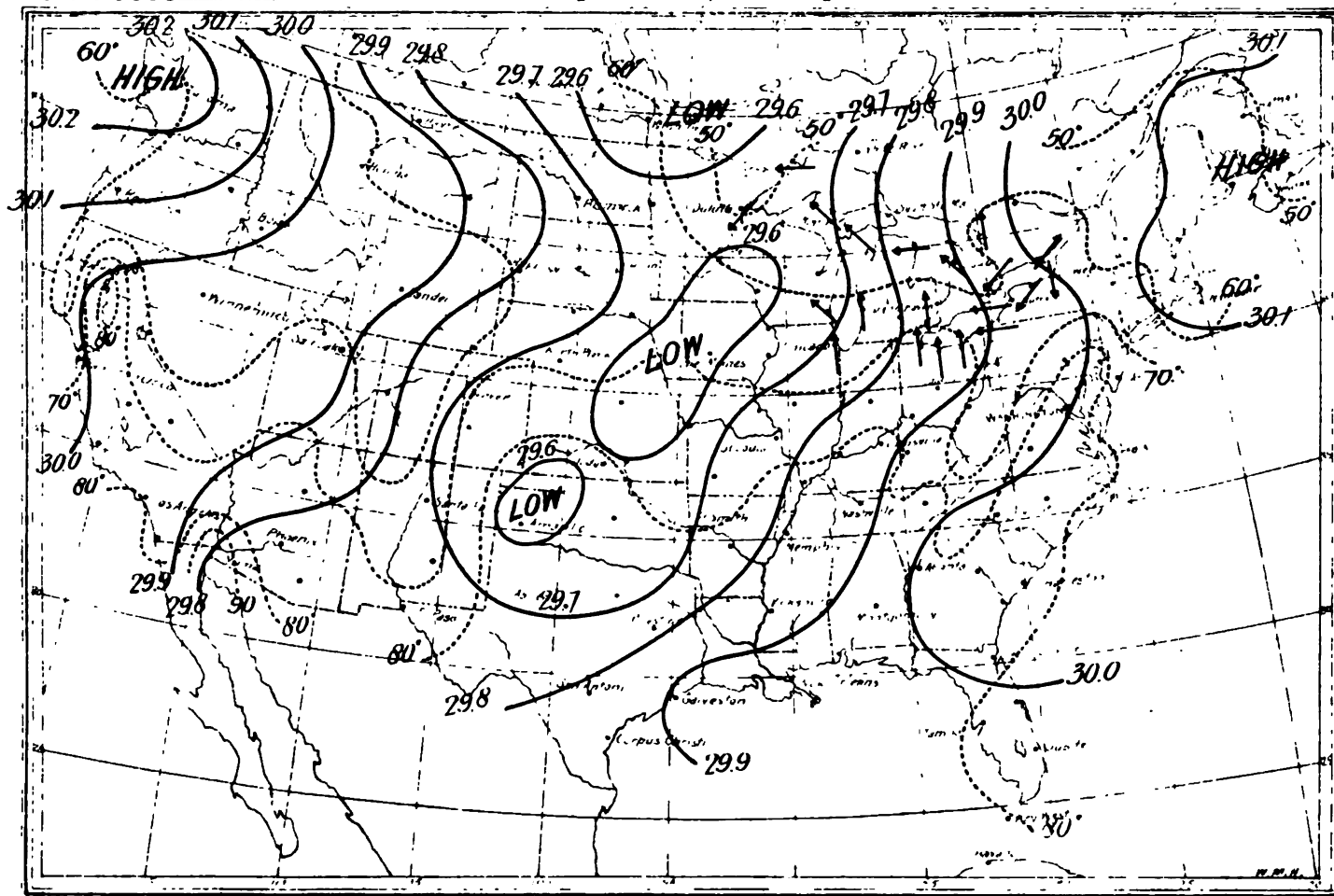
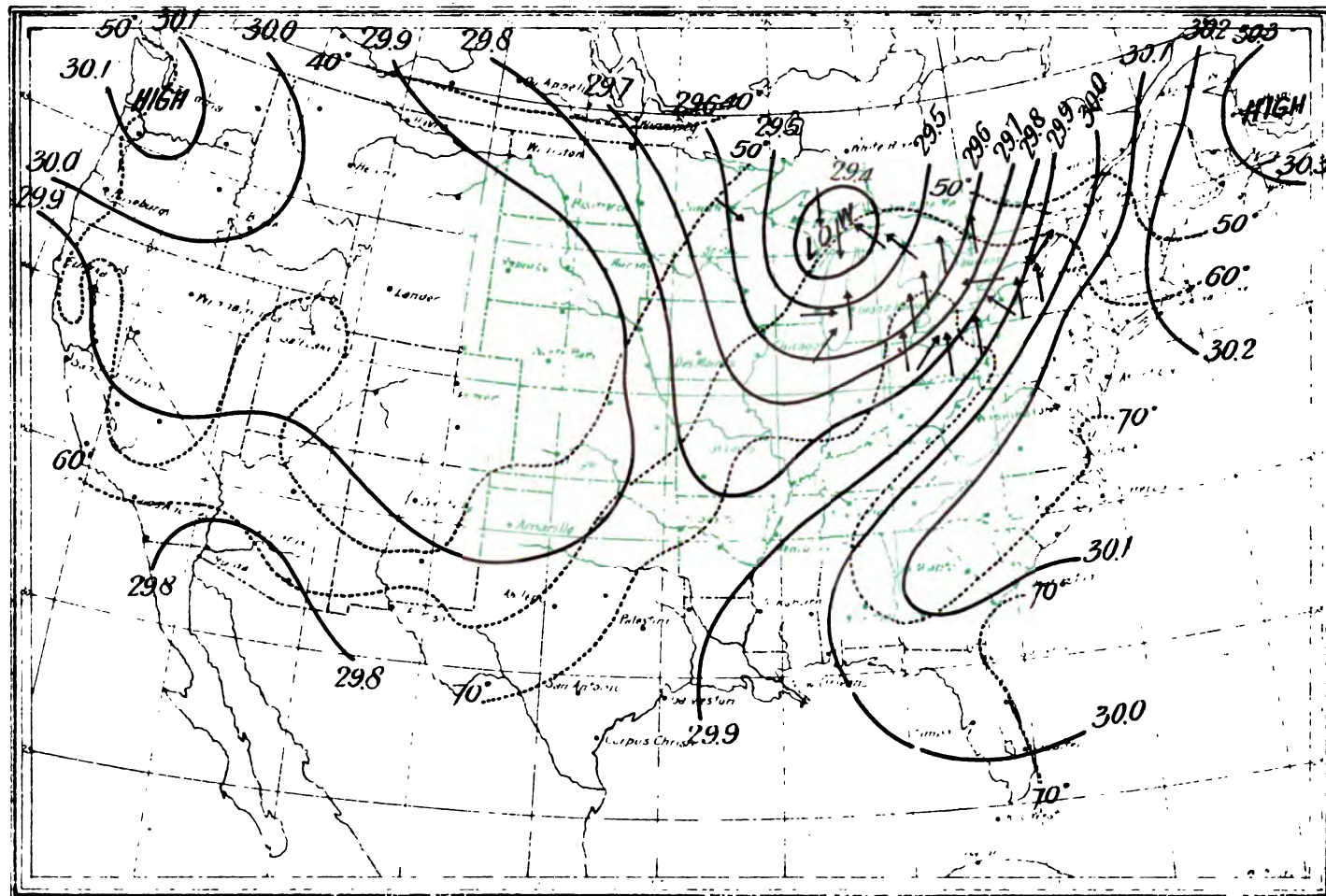


Chart CCCCXXXII.

September 23, 1884—3 p. m.





September 24, 1884—8 p. m.

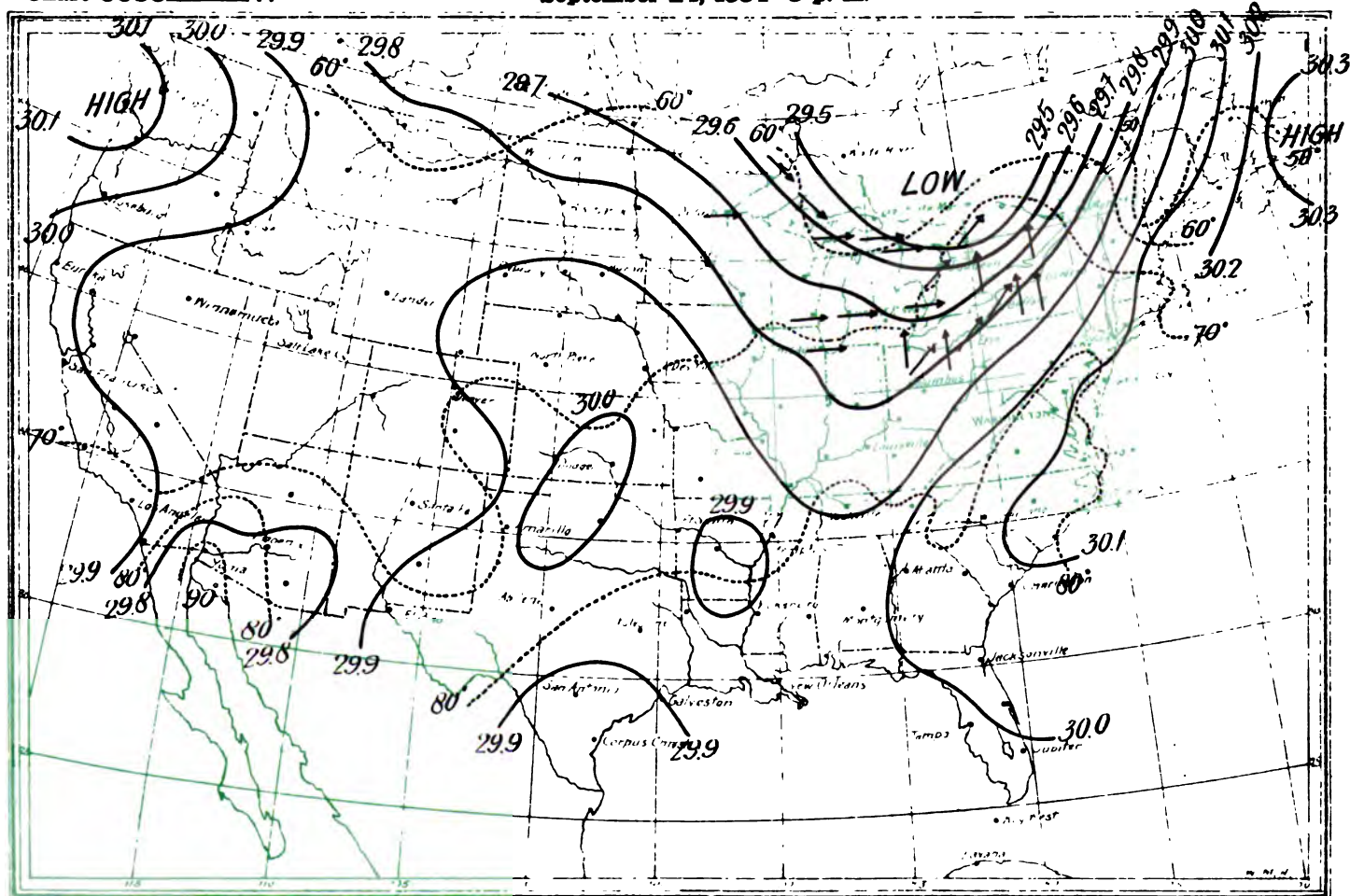


Chart 0000LXXXV.

September 7, 1885—7 a. m.

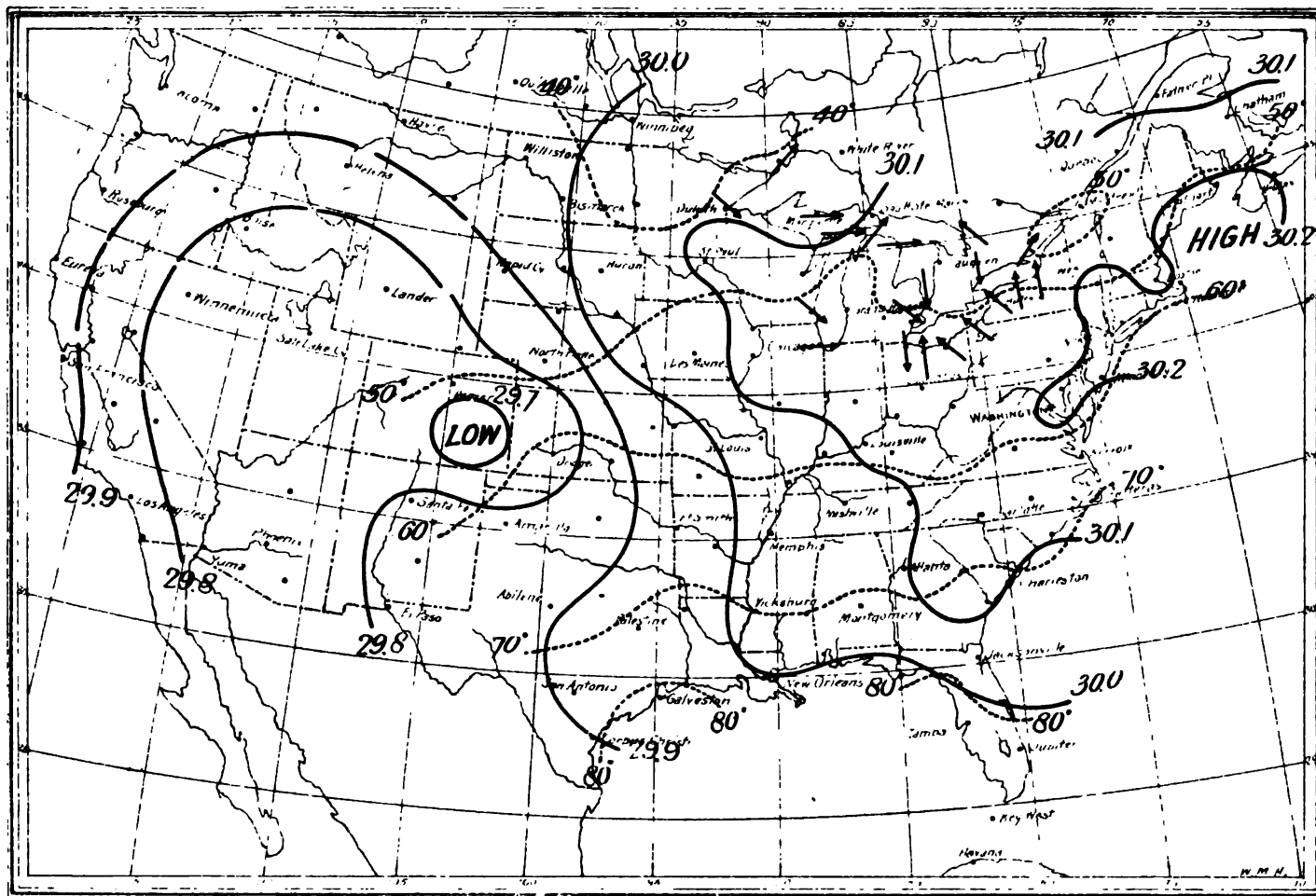


Chart 0000LXXXVI.

September 7, 1885—8 p. m.

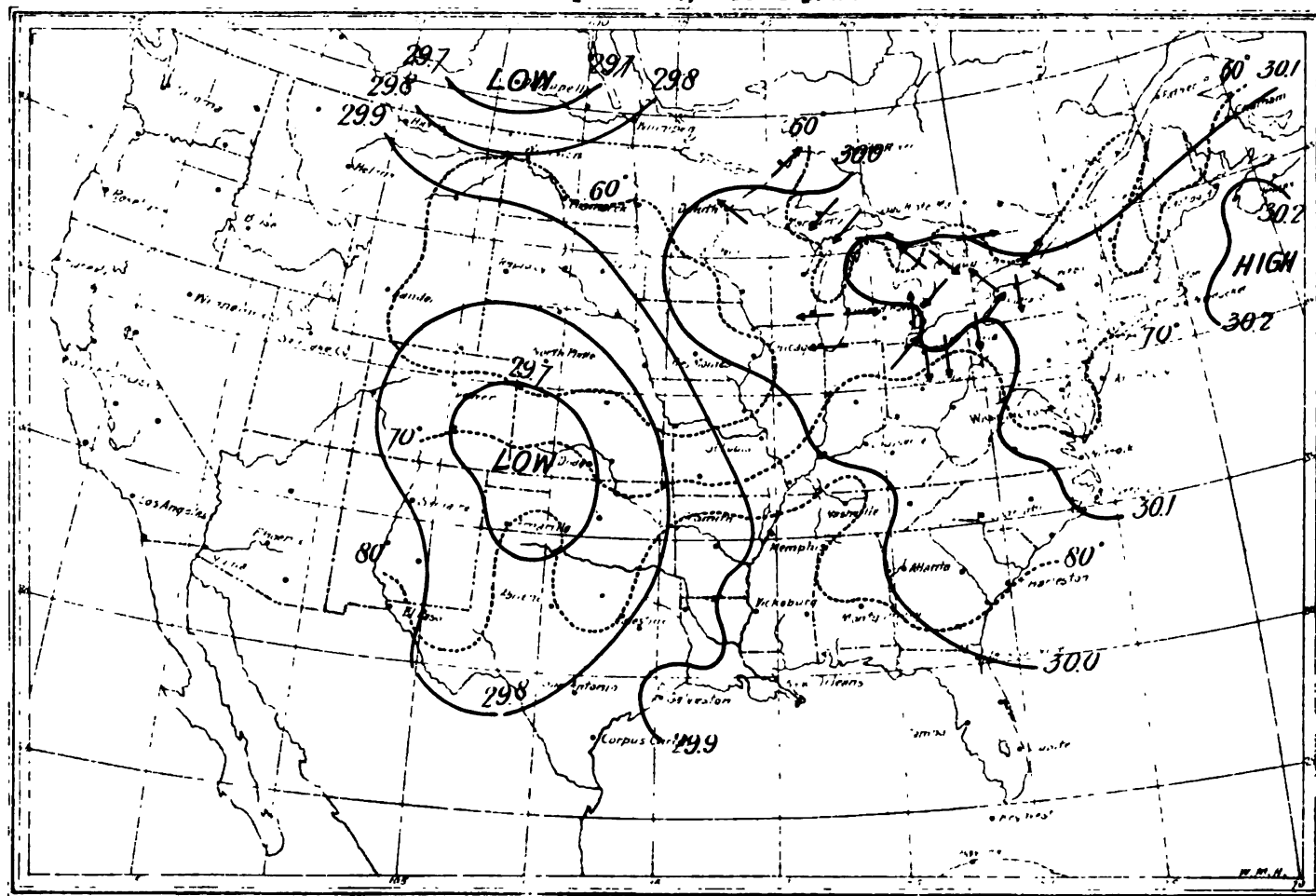


Chart 0000LXXXIII.

September 24, 1884—7 a. m.

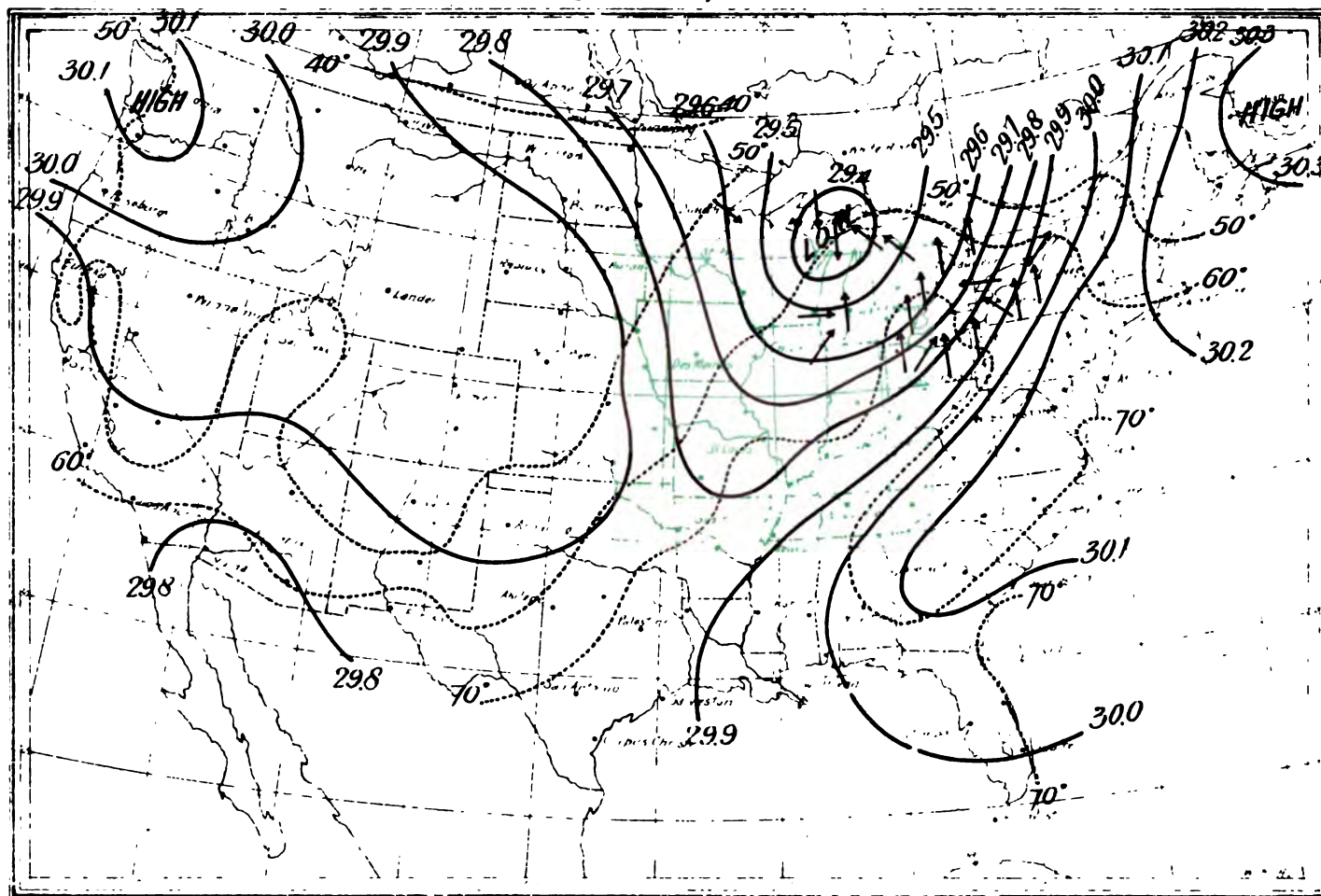


Chart 0000LXXXIV.

September 24, 1884—8 p. m.

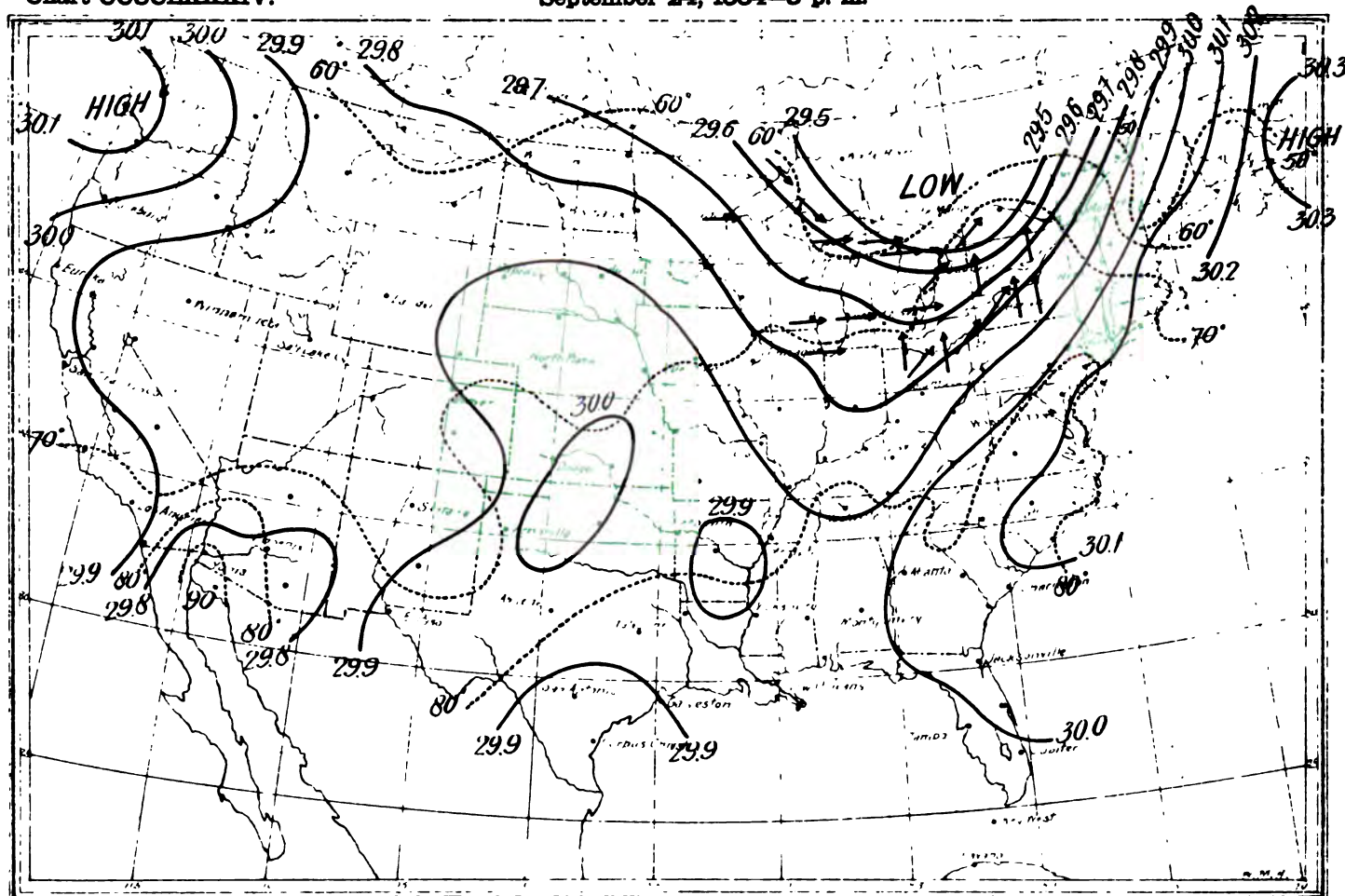


Chart 0000LXXXV.

September 7, 1885—7 a. m.

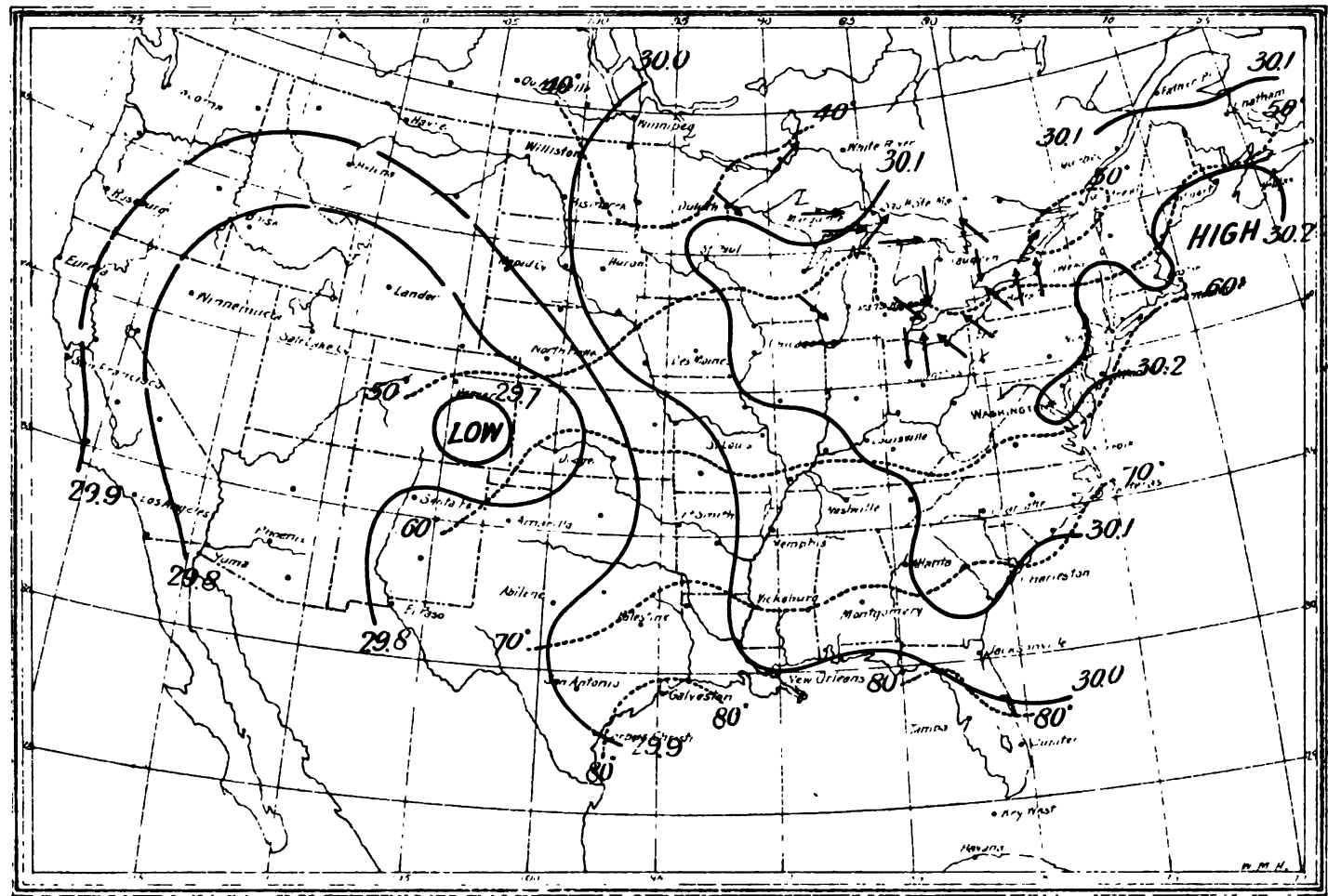


Chart 0000LXXXVI.

September 7, 1885—8 p. m.

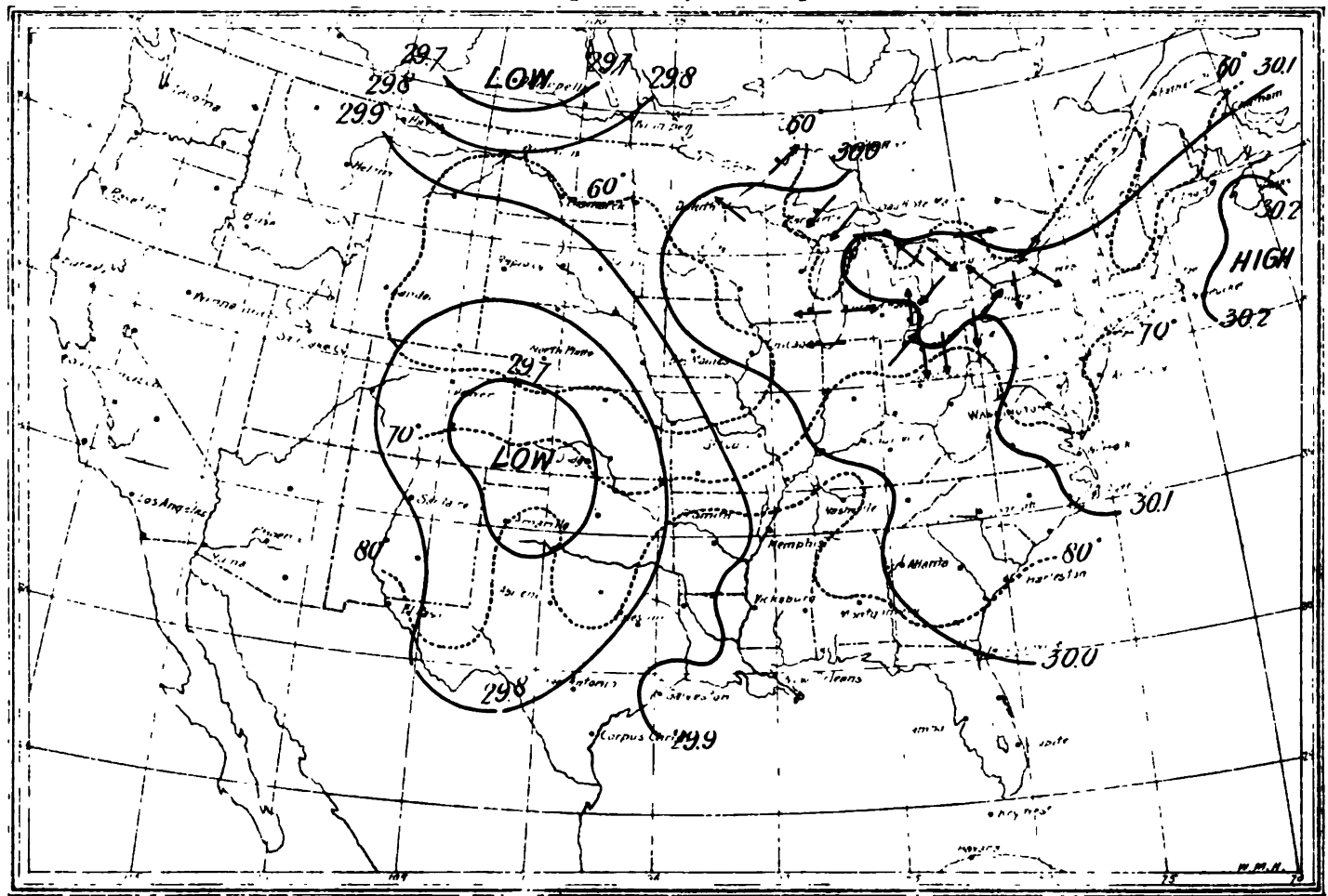


Chart 0000LXXXIII.

September 24, 1884—7 a. m.

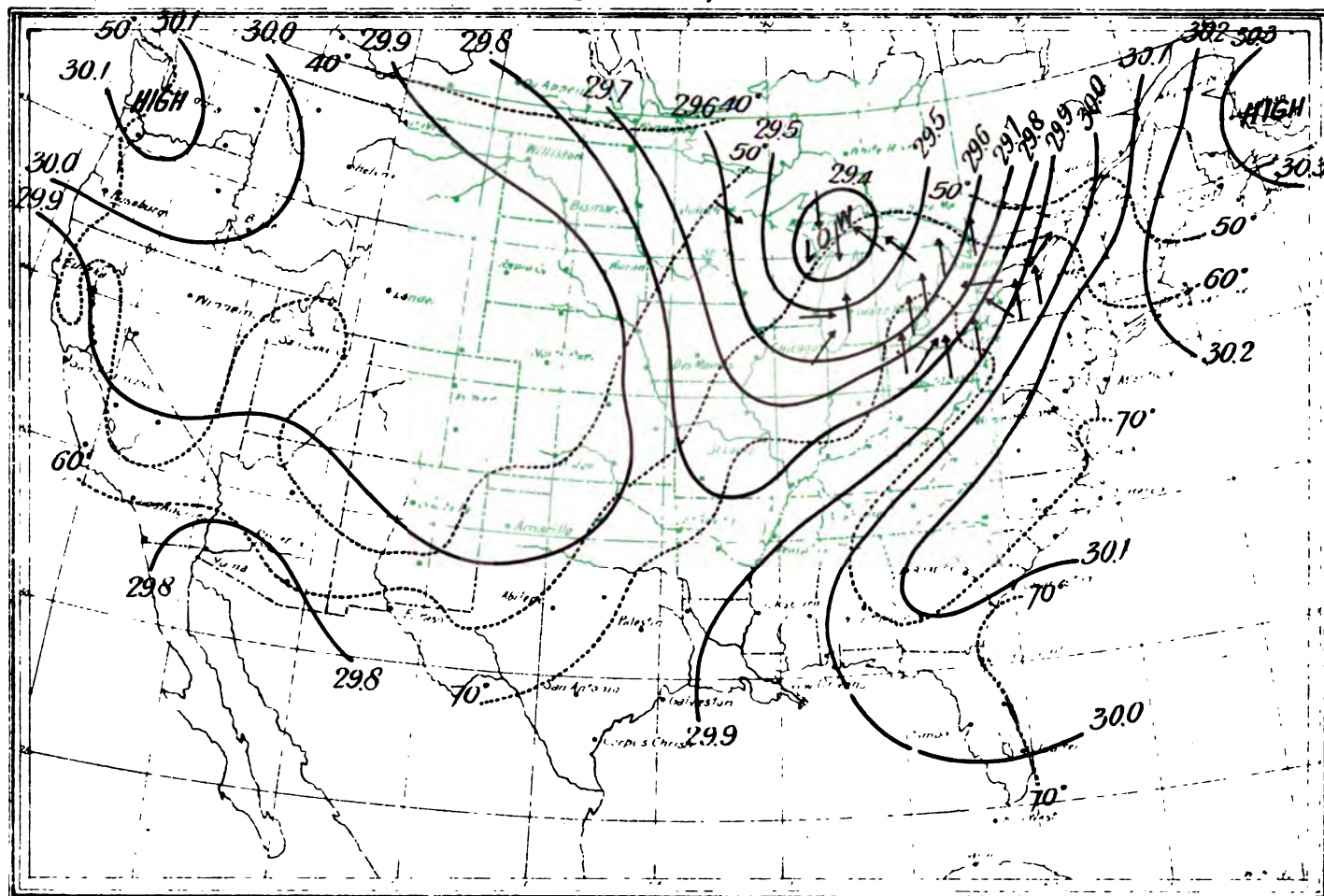


Chart 0000LXXXIV.

September 24, 1884—8 p. m.

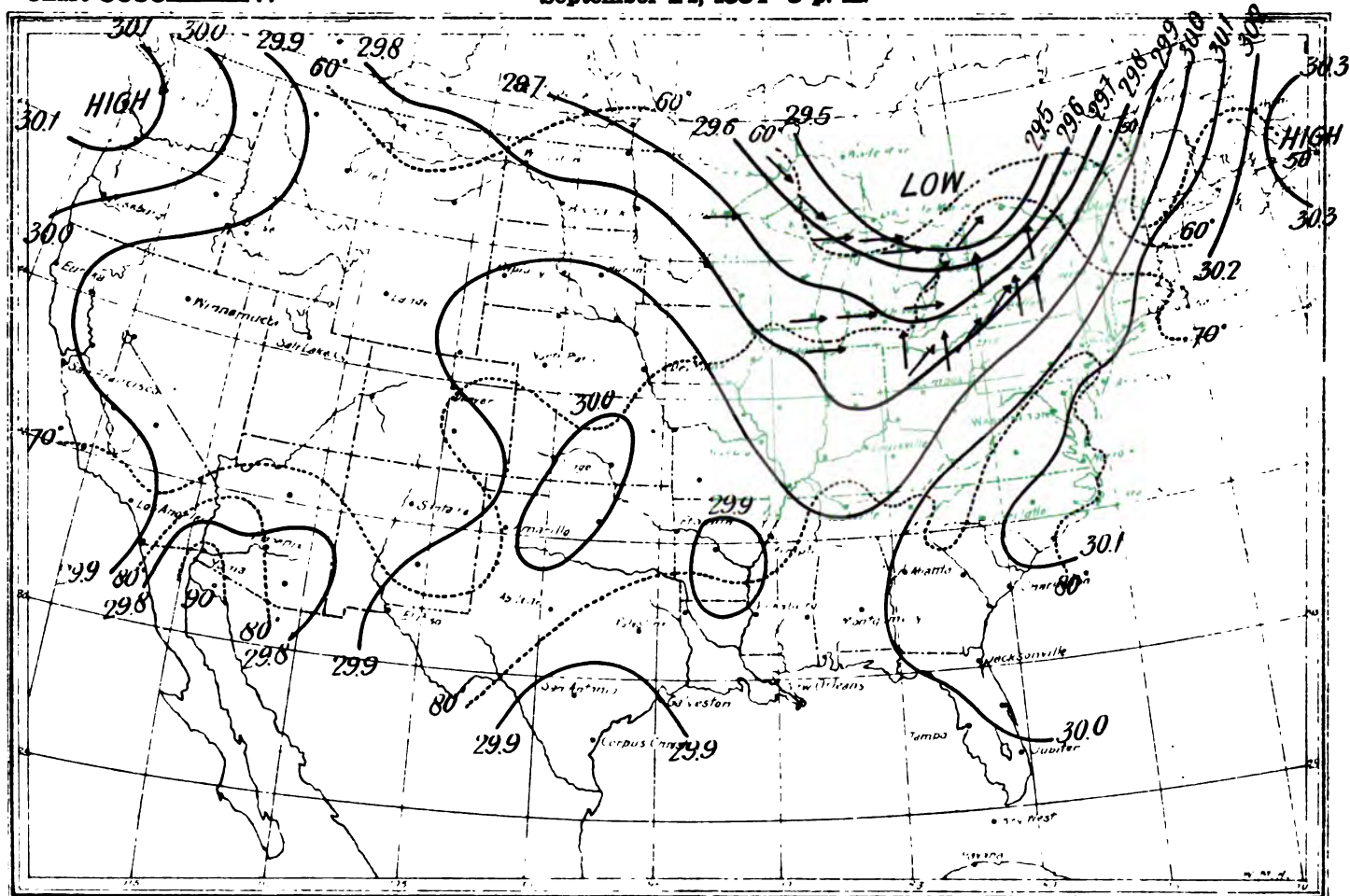


Chart 0000LXXXV.

September 7, 1885—7 a. m.

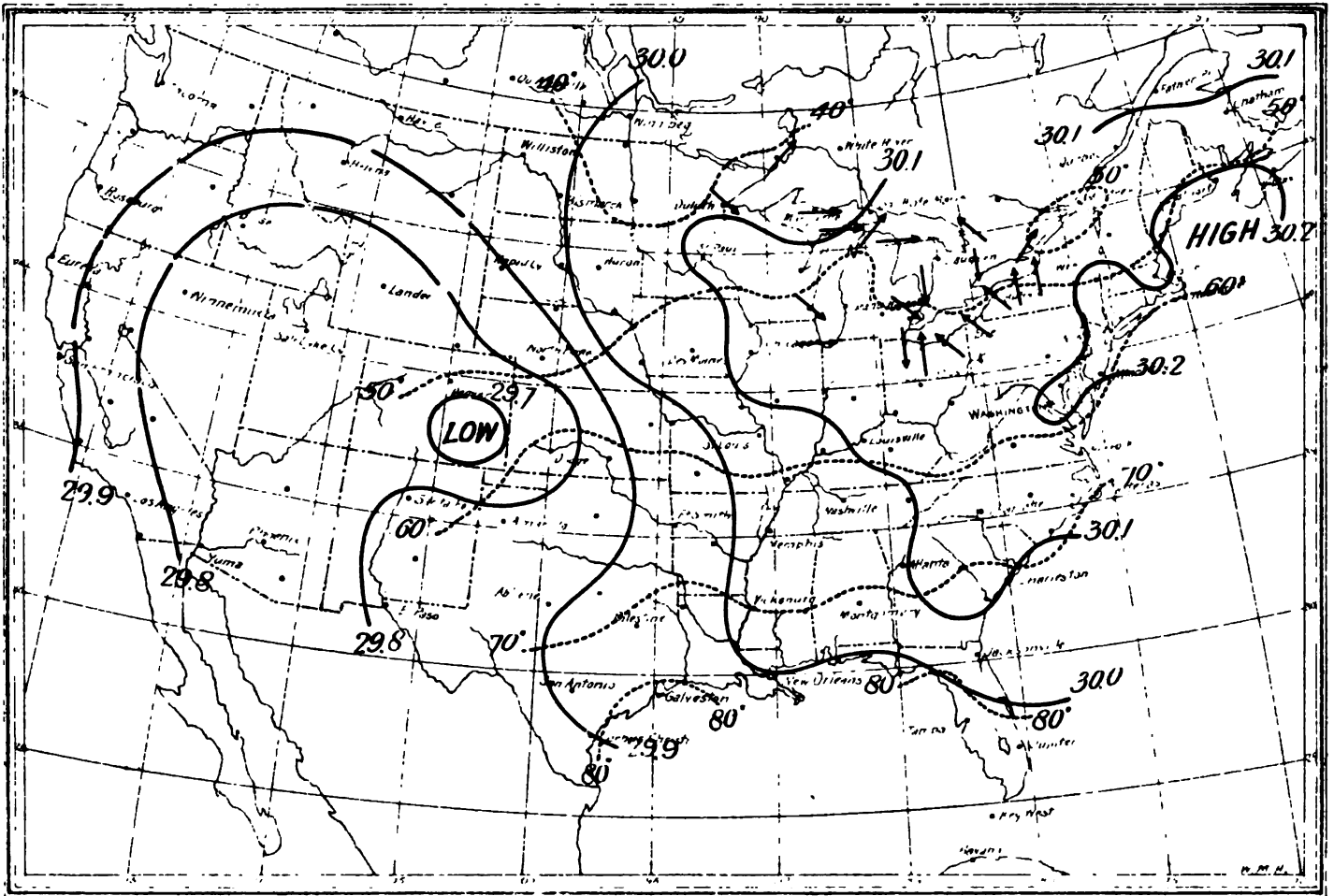


Chart 0000LXXXVI.

September 7, 1885—3 p. m.

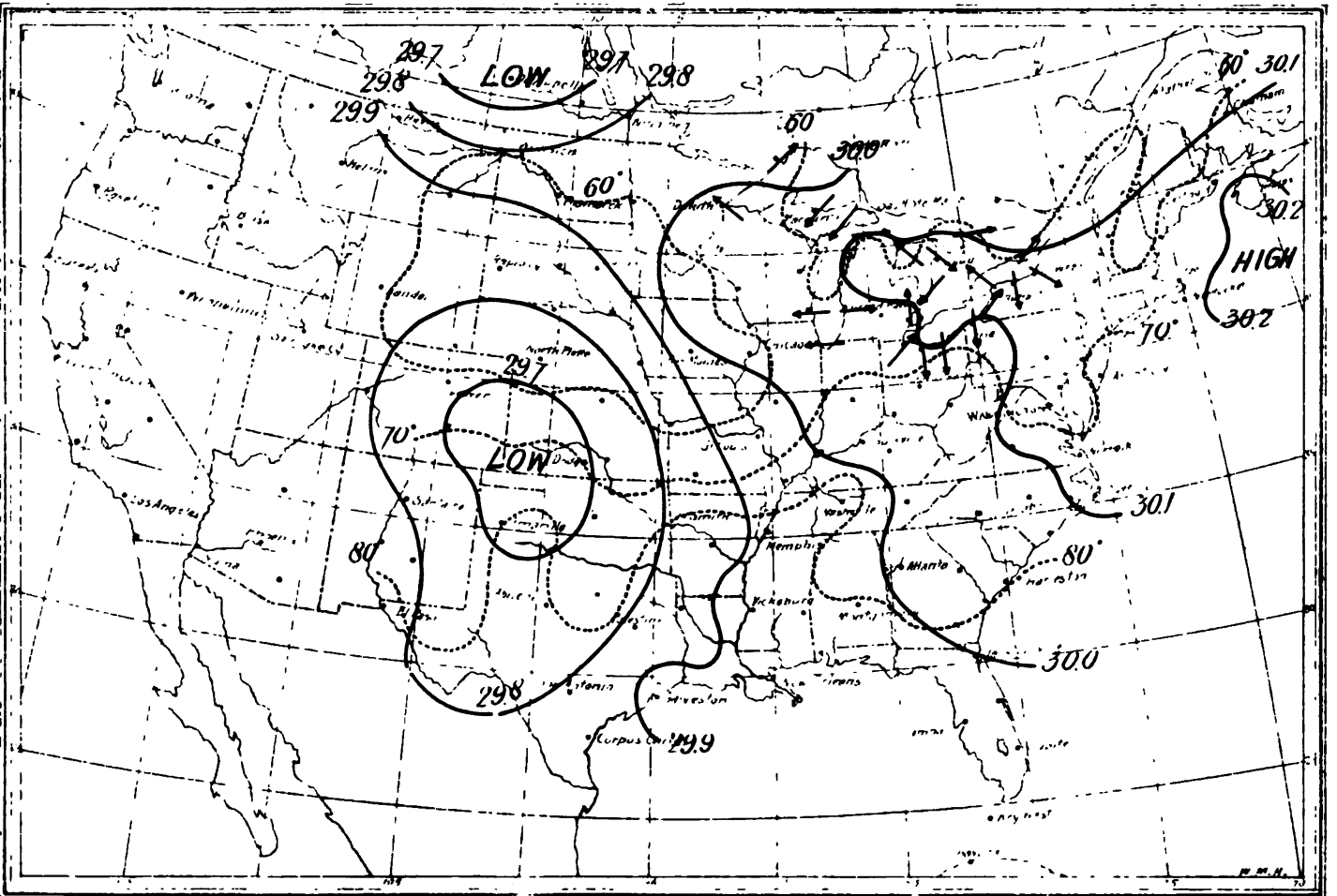


Chart CCCCXXXVII.

September 8, 1885—7 a. m.

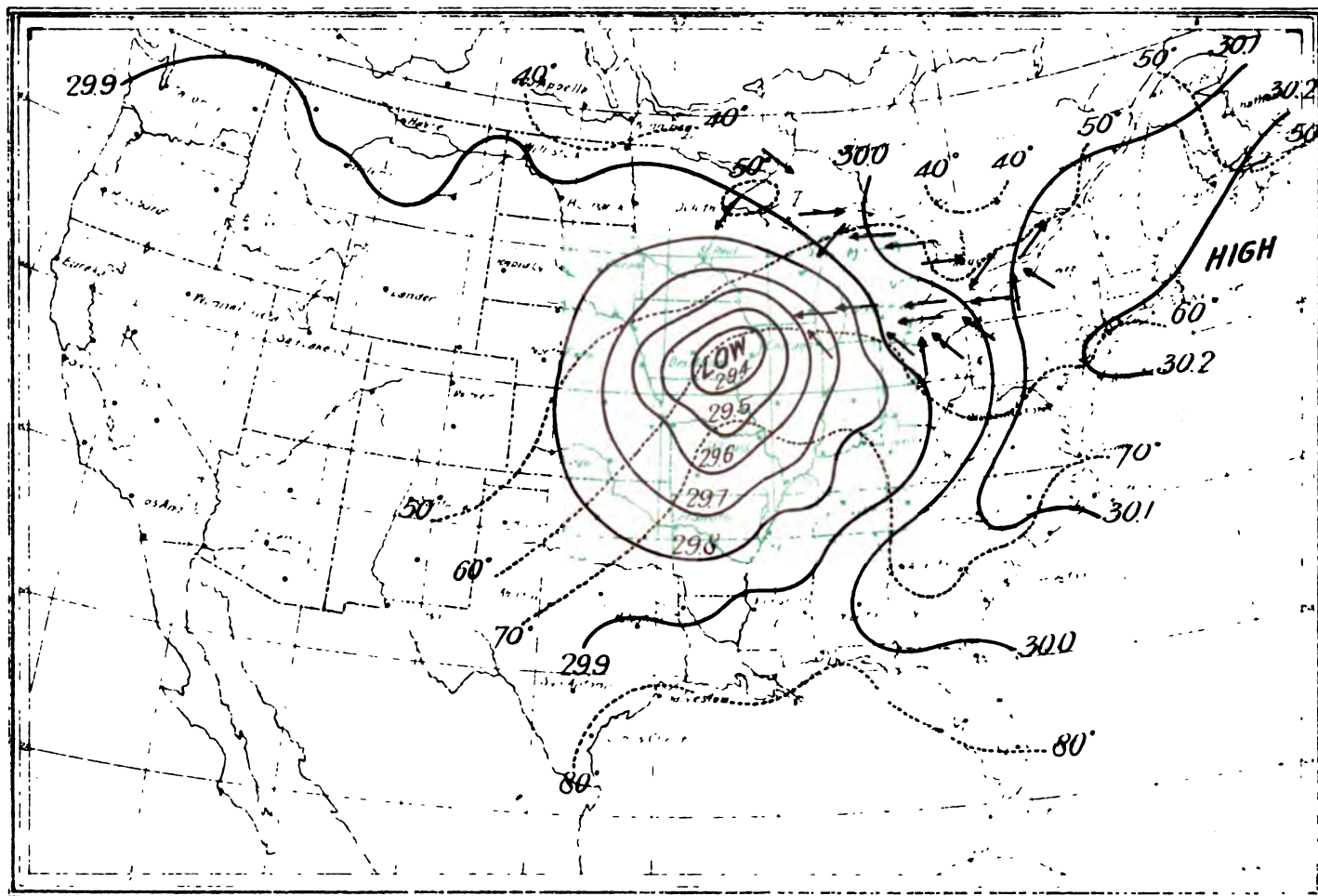


Chart CCCCXXXVIII.

September 8, 1885—3 p. m.

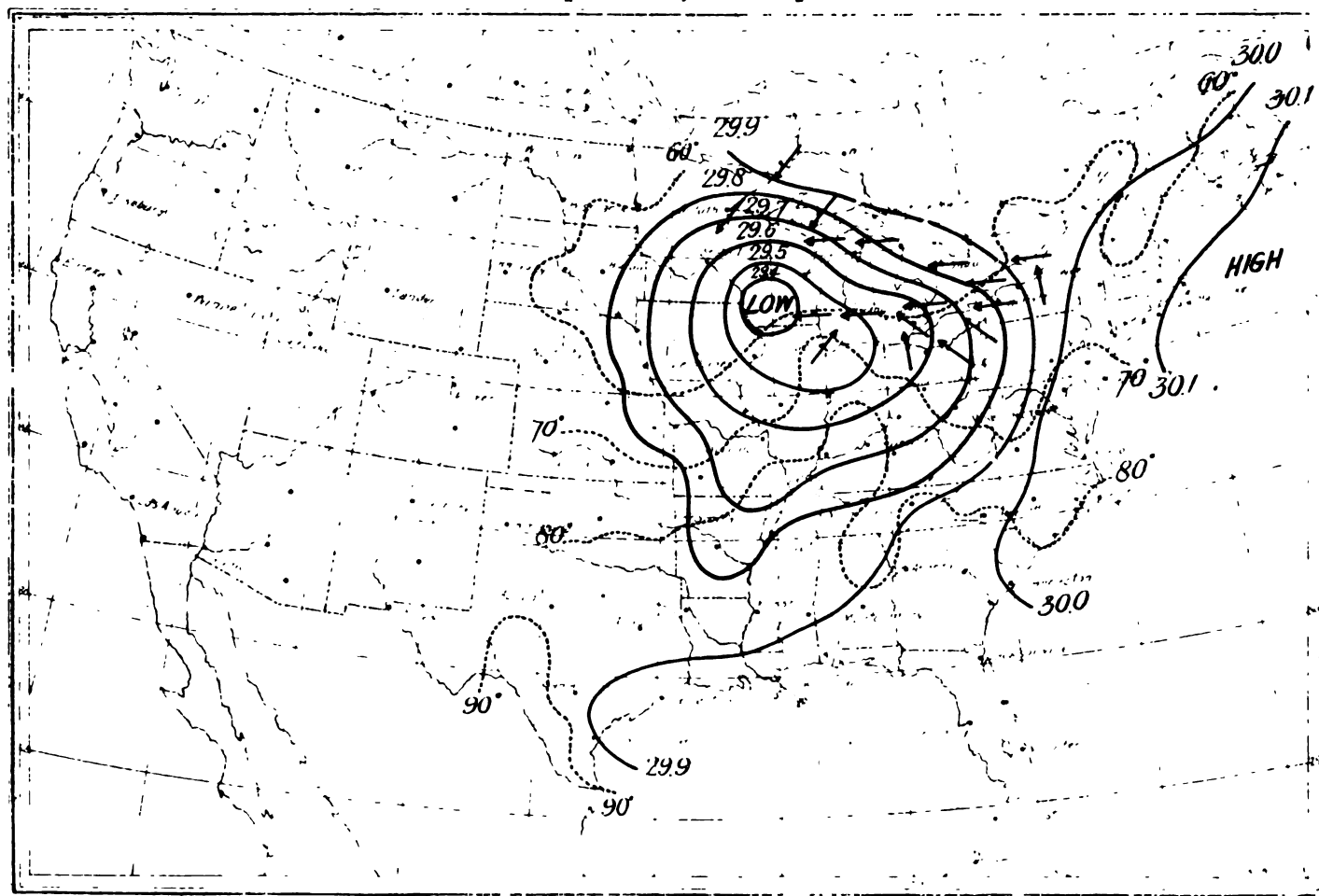


Chart 0000LXXXIX.

September 25, 1888—8 a. m.

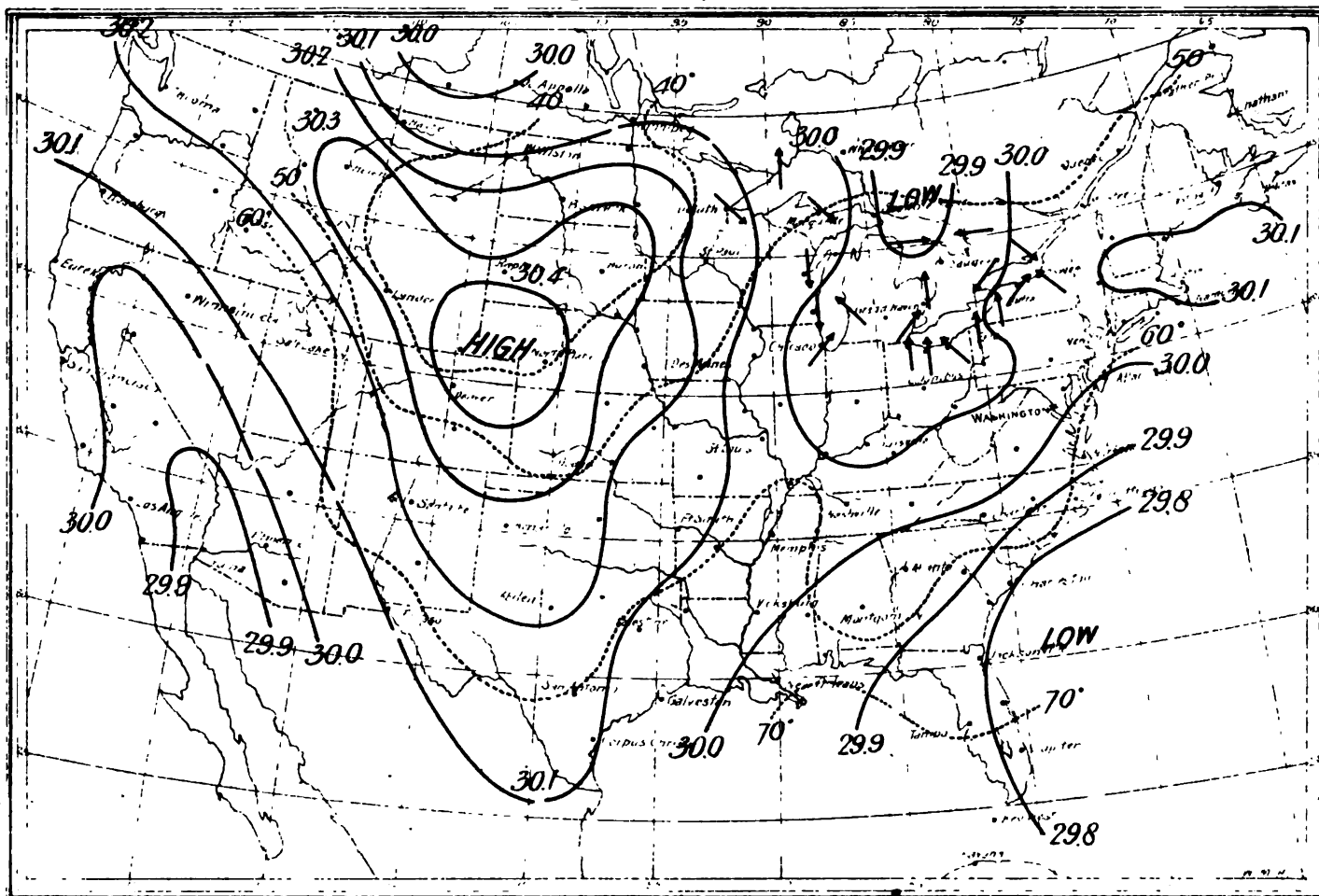


Chart 0000XO.

September 25, 1888—8 p. m.

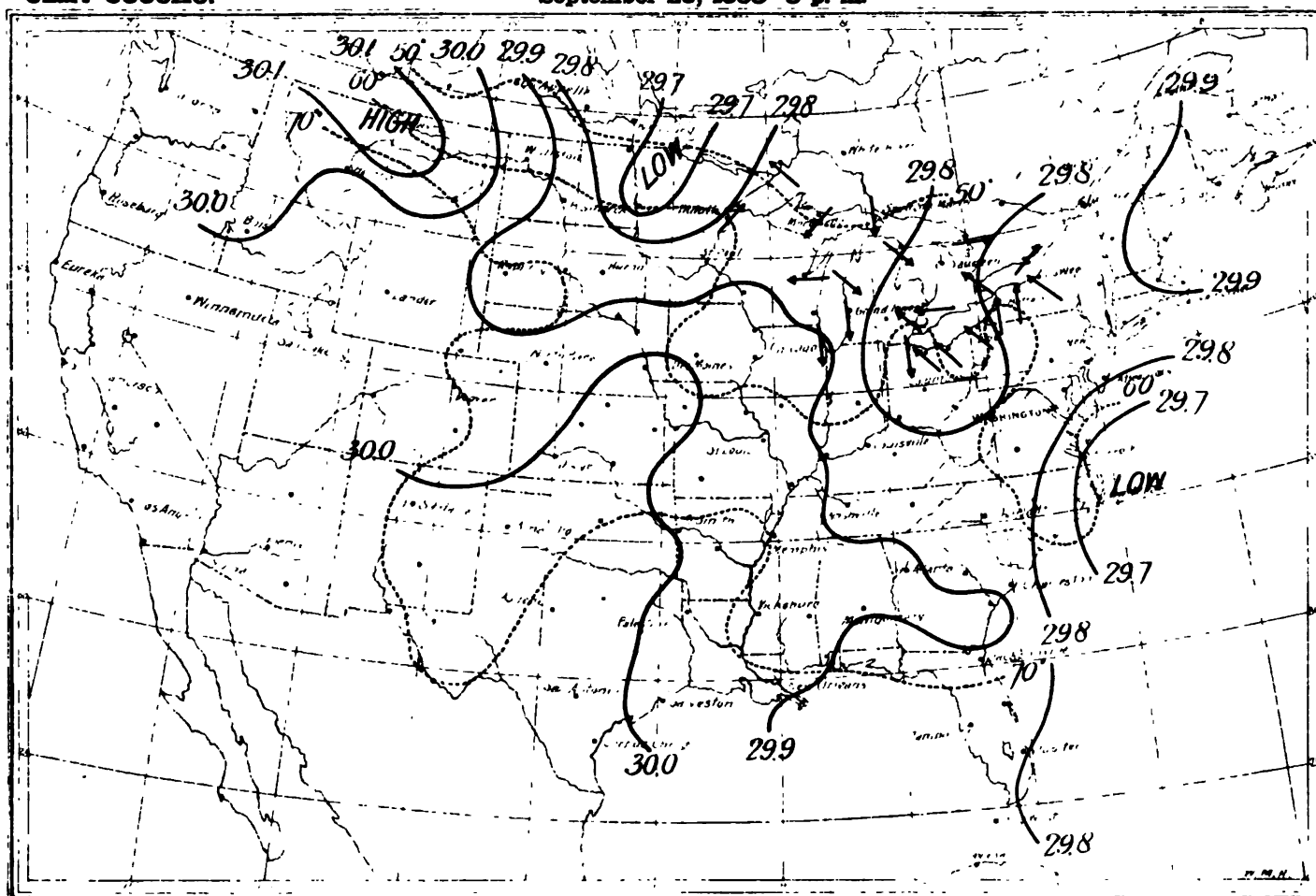


Chart OOOOXOI.

September 26, 1888—8 a. m.

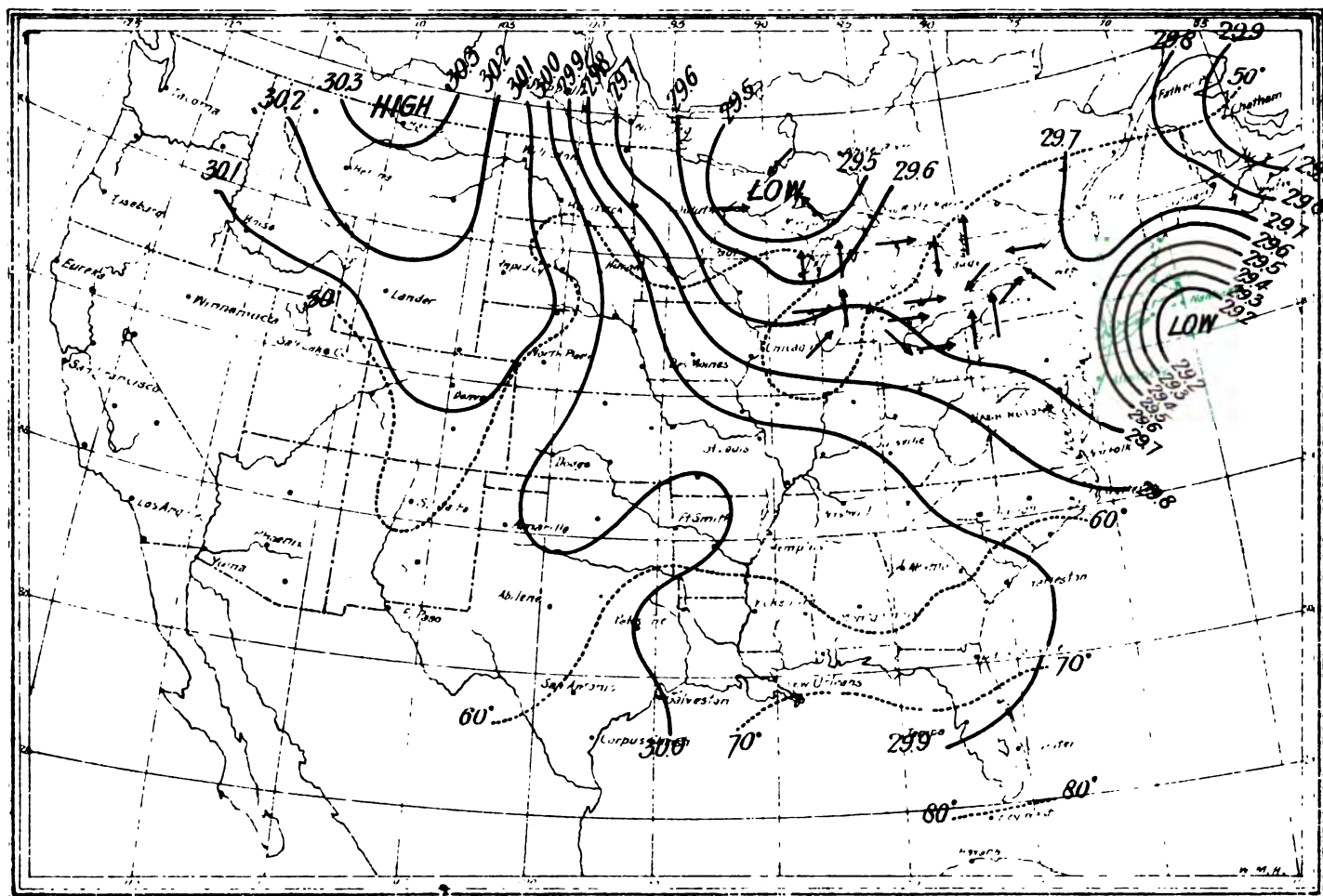


Chart OOOOXOII.

September 26, 1888—8 p. m.

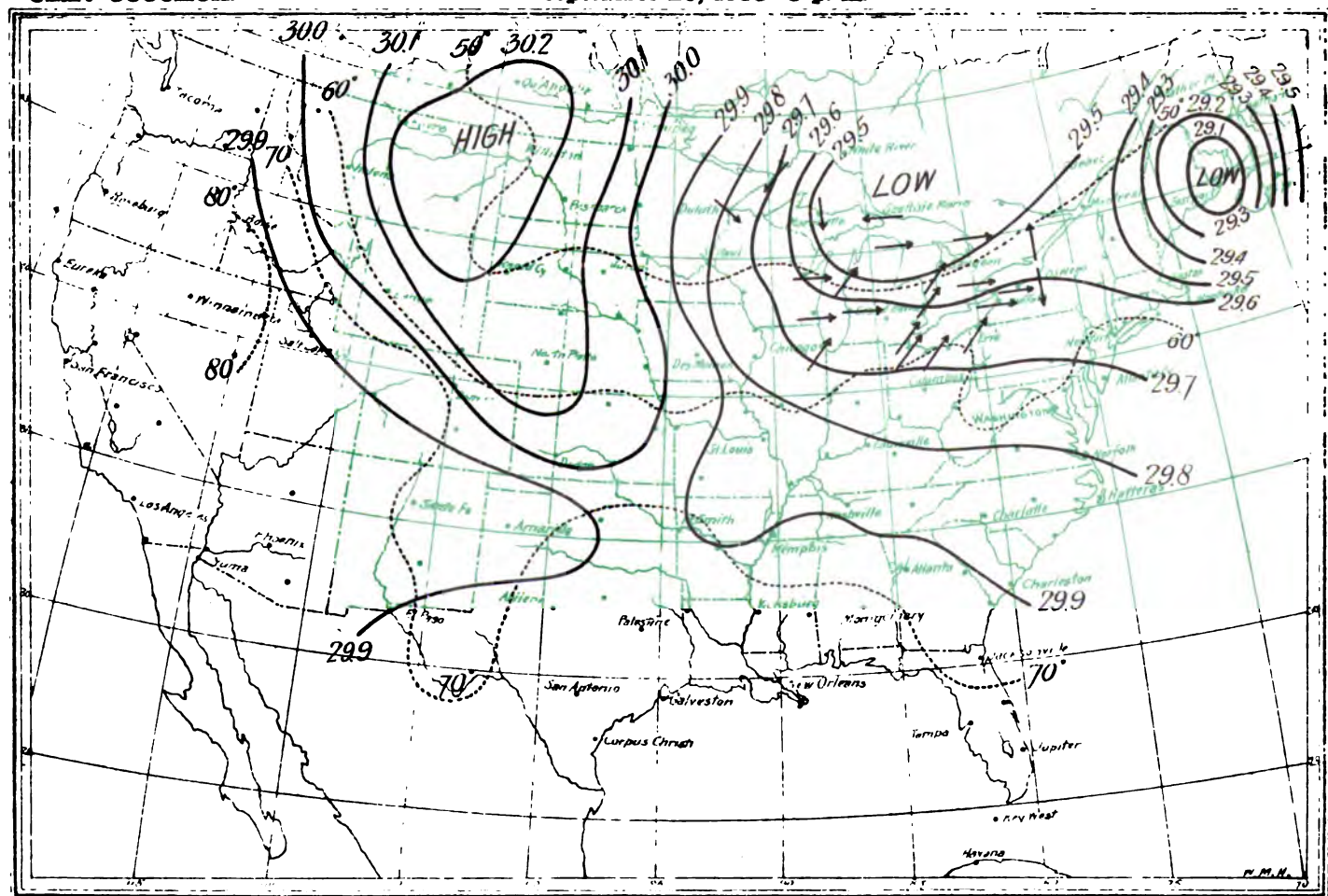


Chart OOOOXOIII.

September 18, 1889—8 a. m.

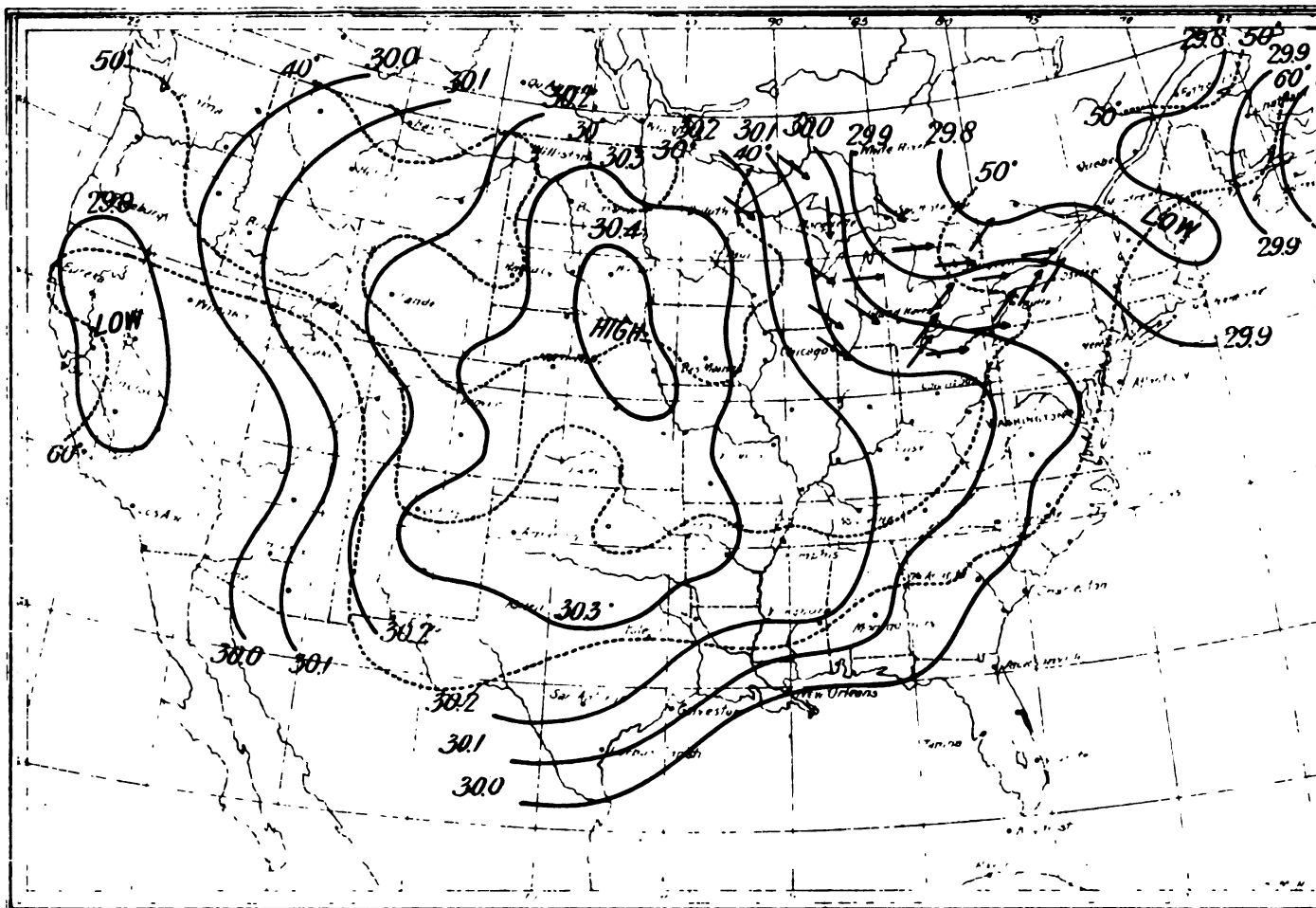


Chart OOOOXOIV.

September 18, 1889—8 p. m.

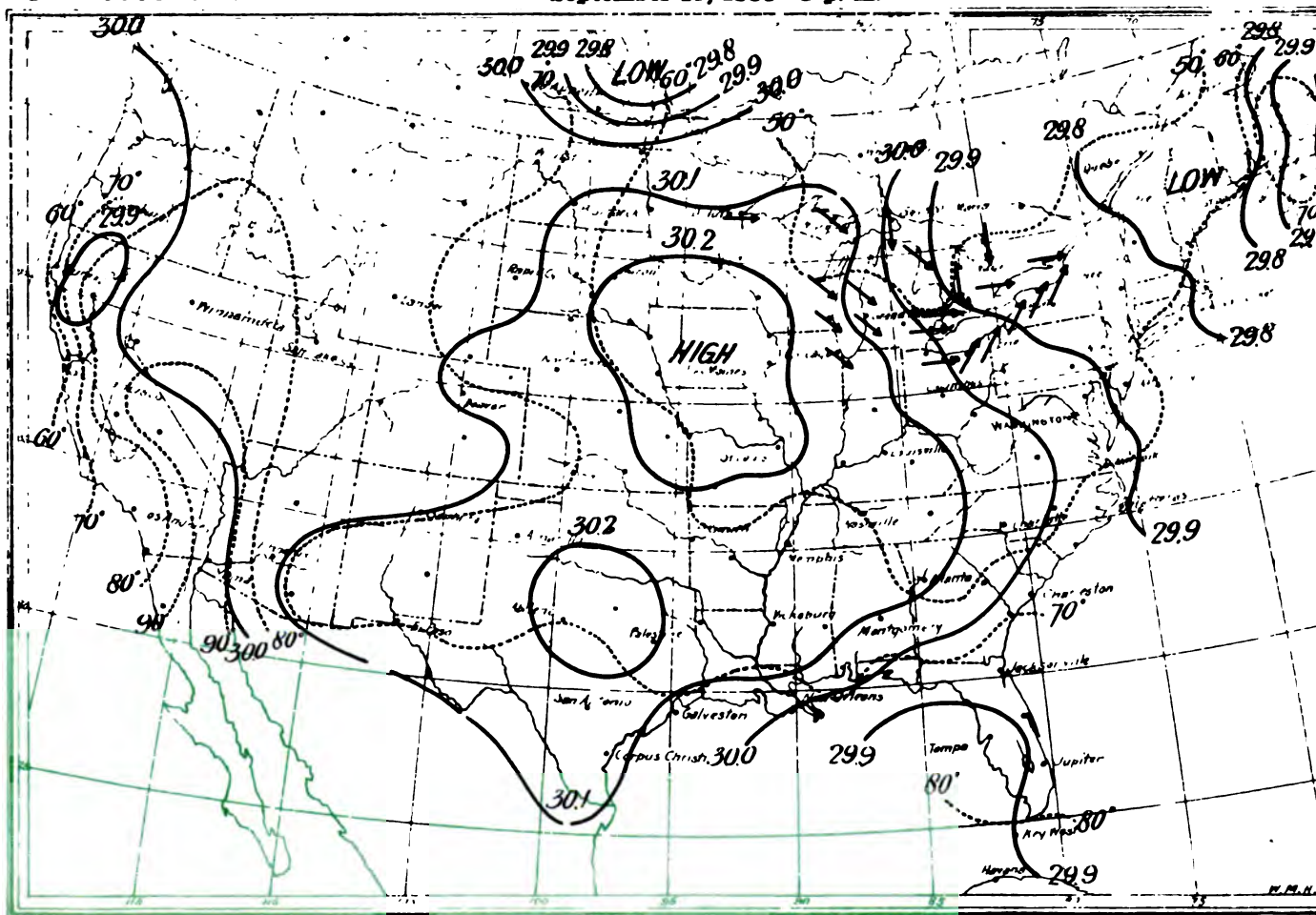


Chart 0000LXVII.

September 10, 1881—7 a. m.

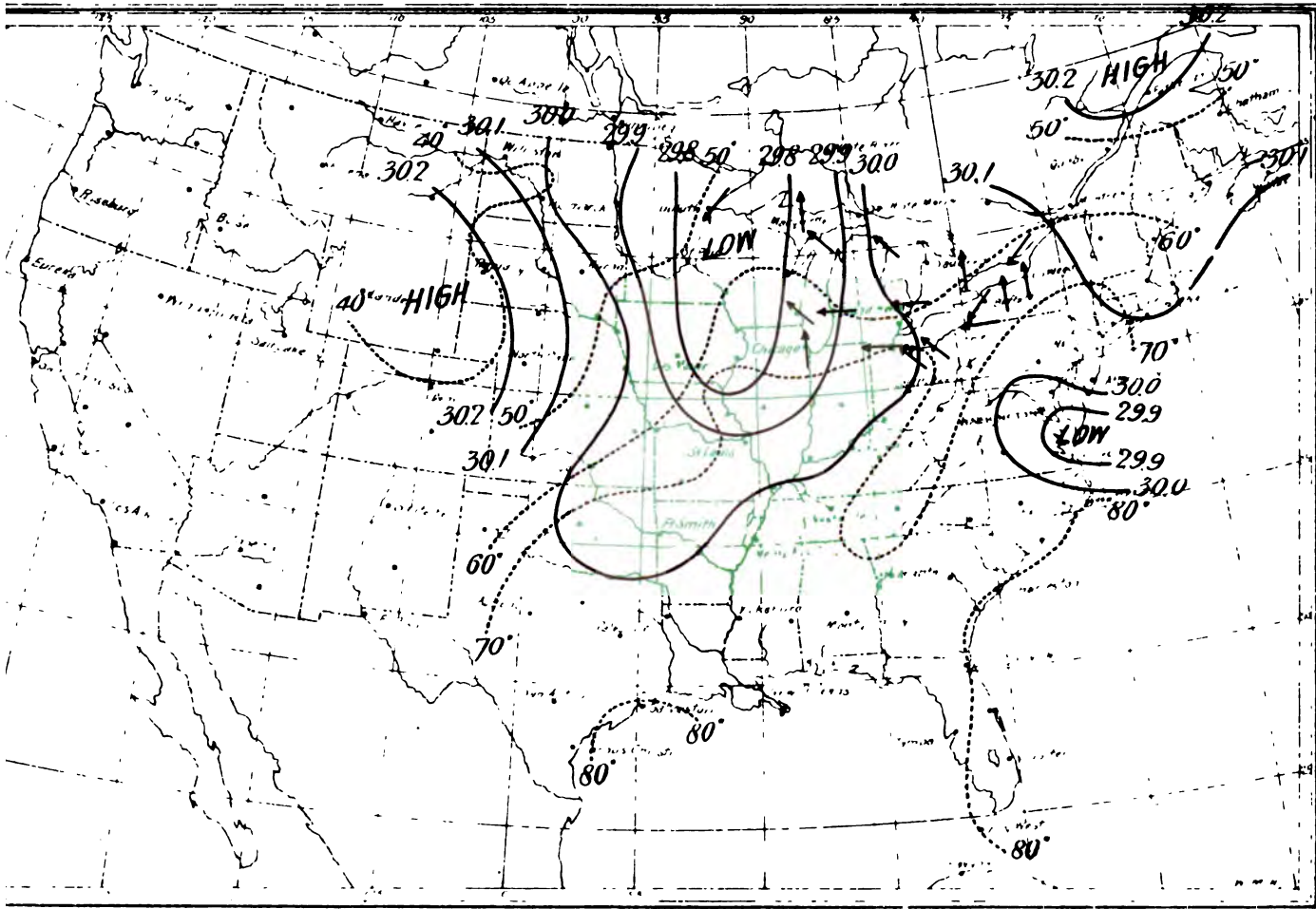


Chart 0000LXVIII.

September 10, 1881—3 p. m.

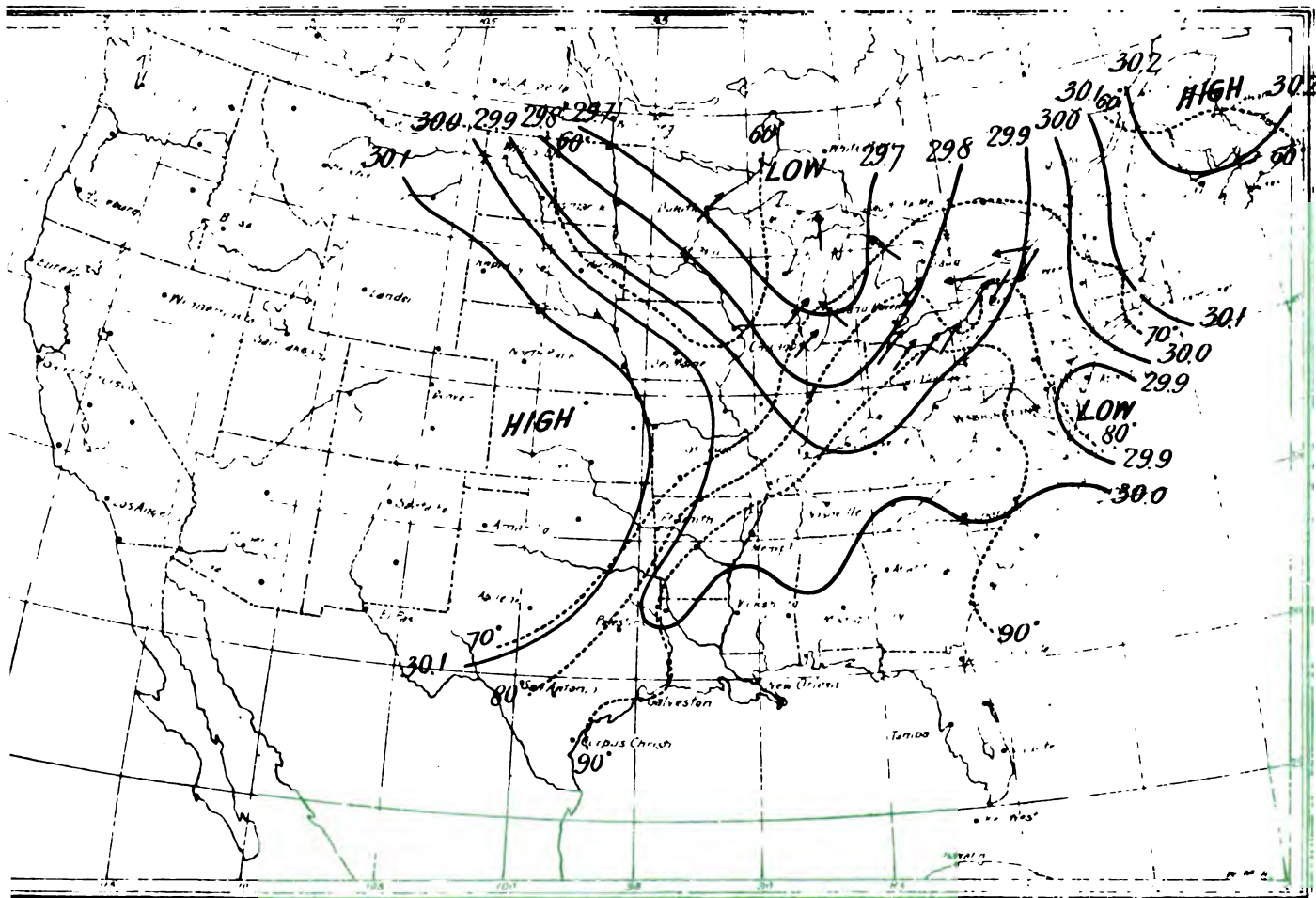


Chart 0000LXIX.

September 28, 1881—7 a. m.

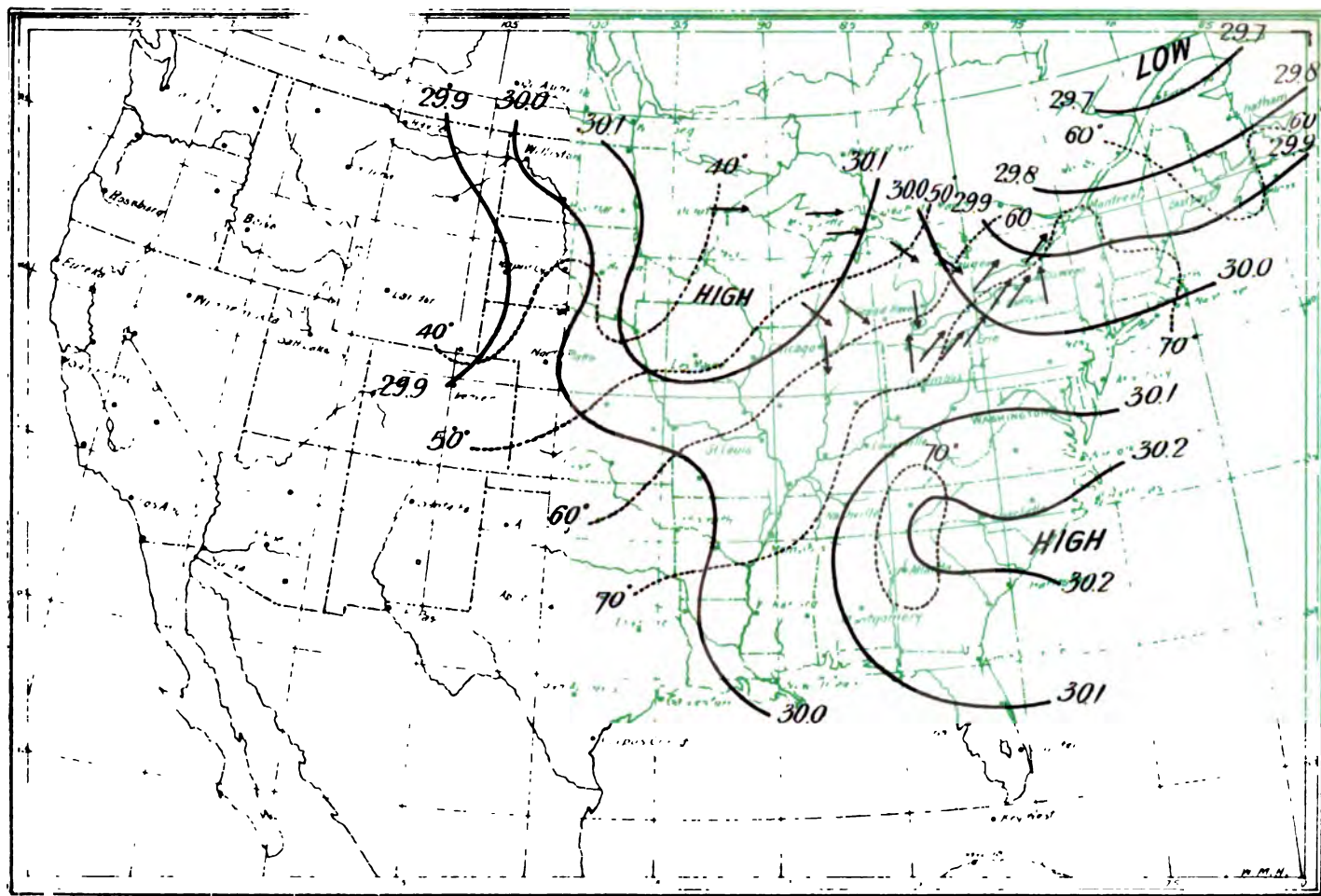


Chart 0000LXX.

September 28, 1881—8 p. m.

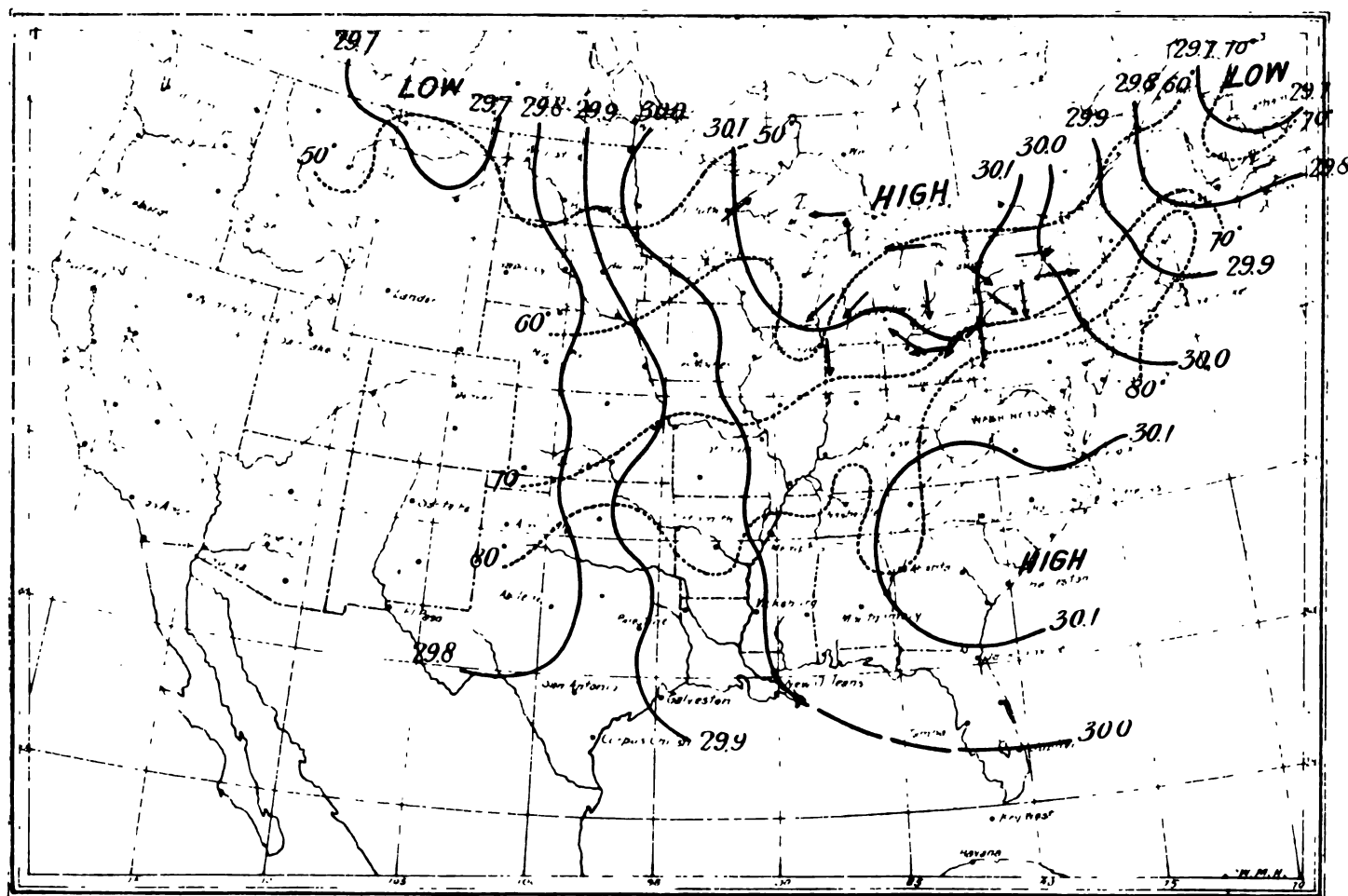


Chart CCCCXXXI.

September 29, 1881—7 a. m.

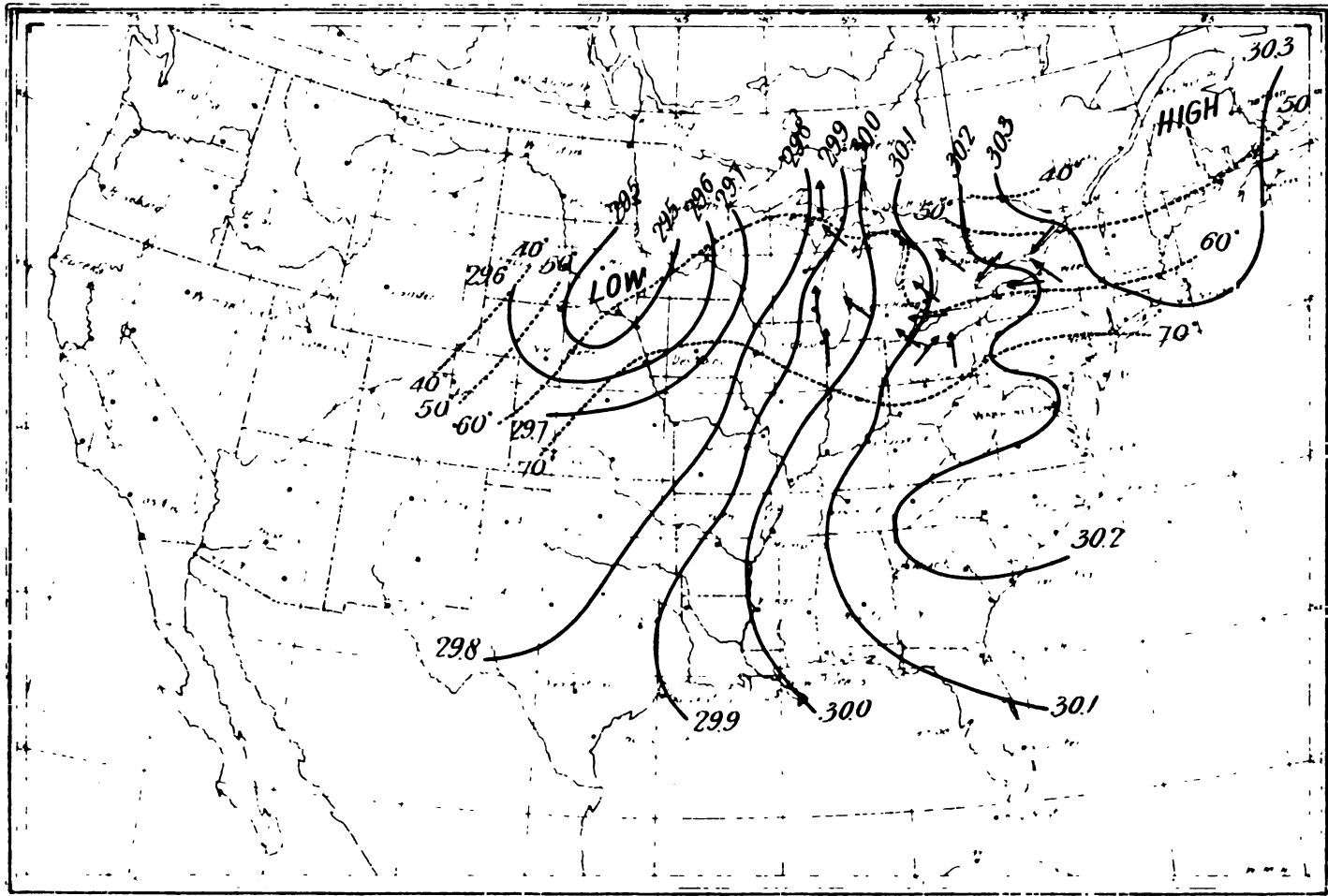
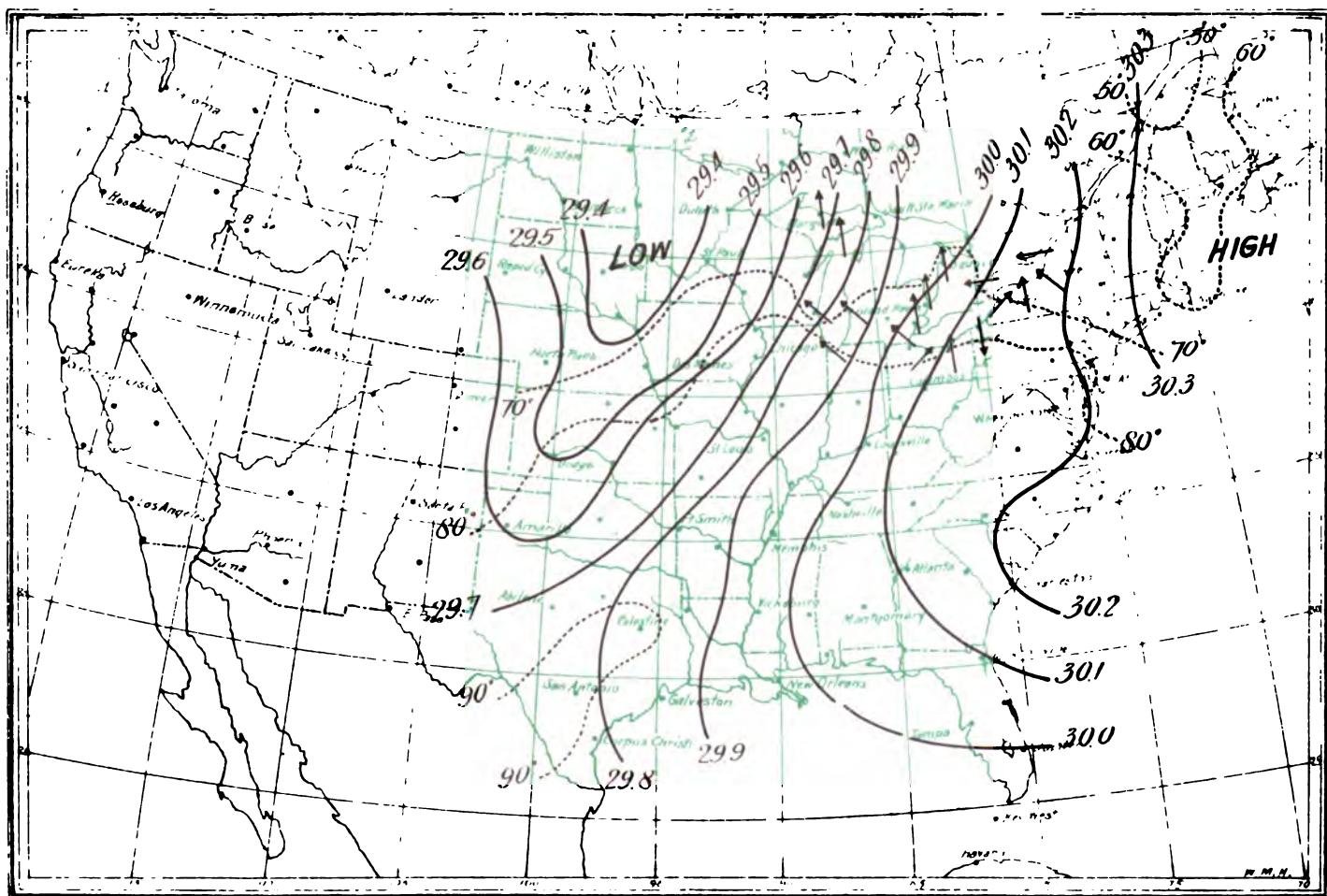
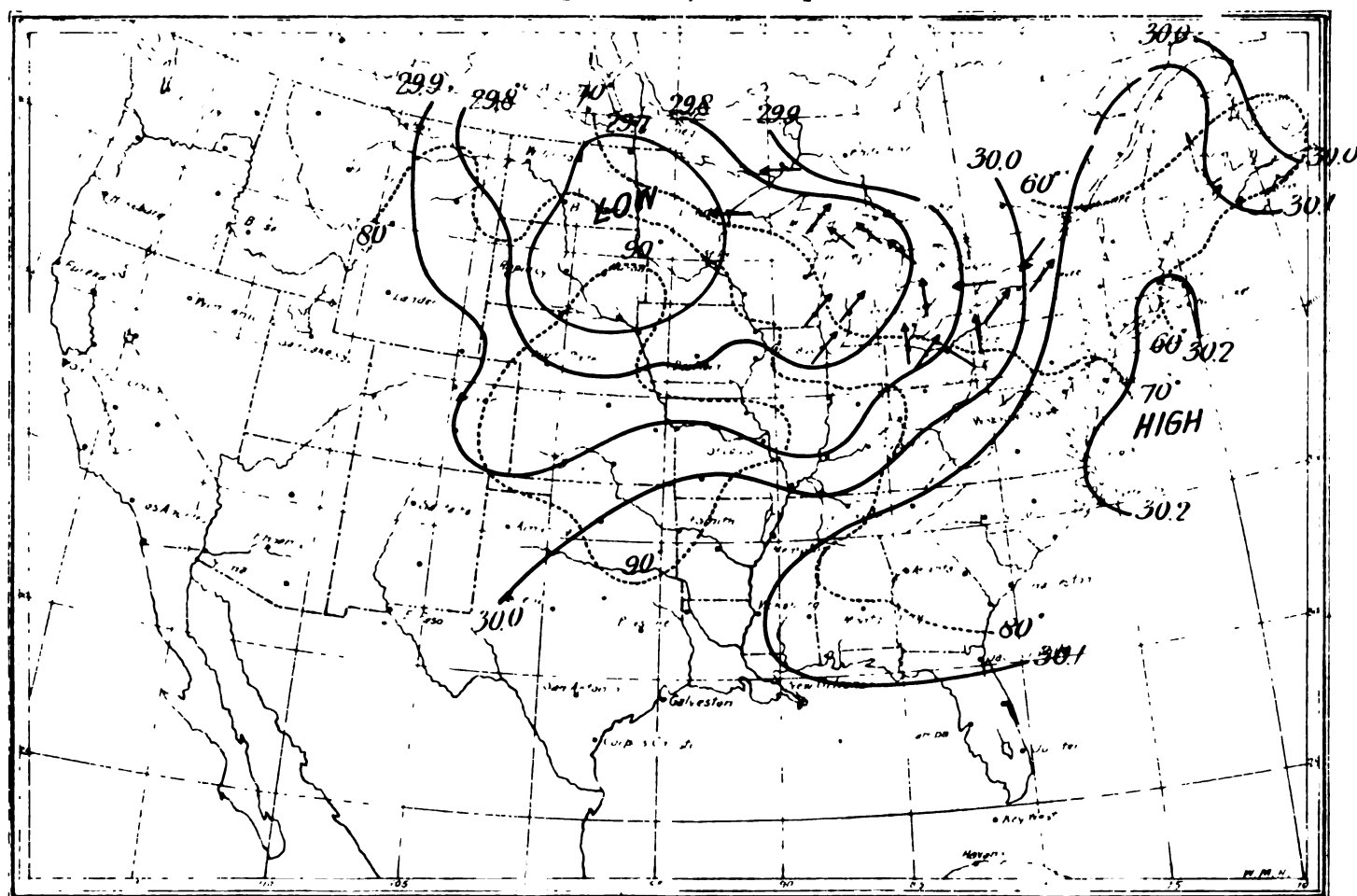
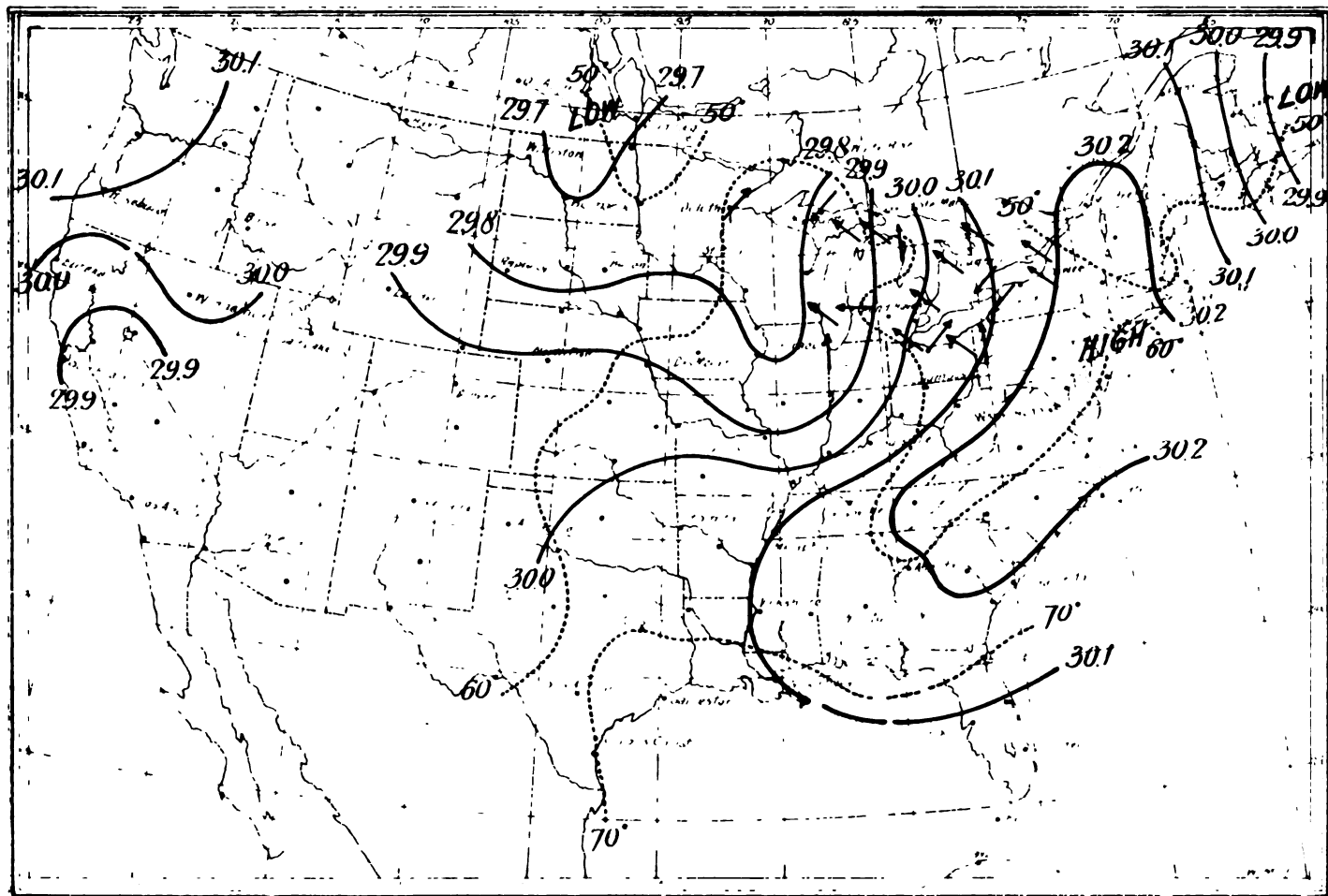


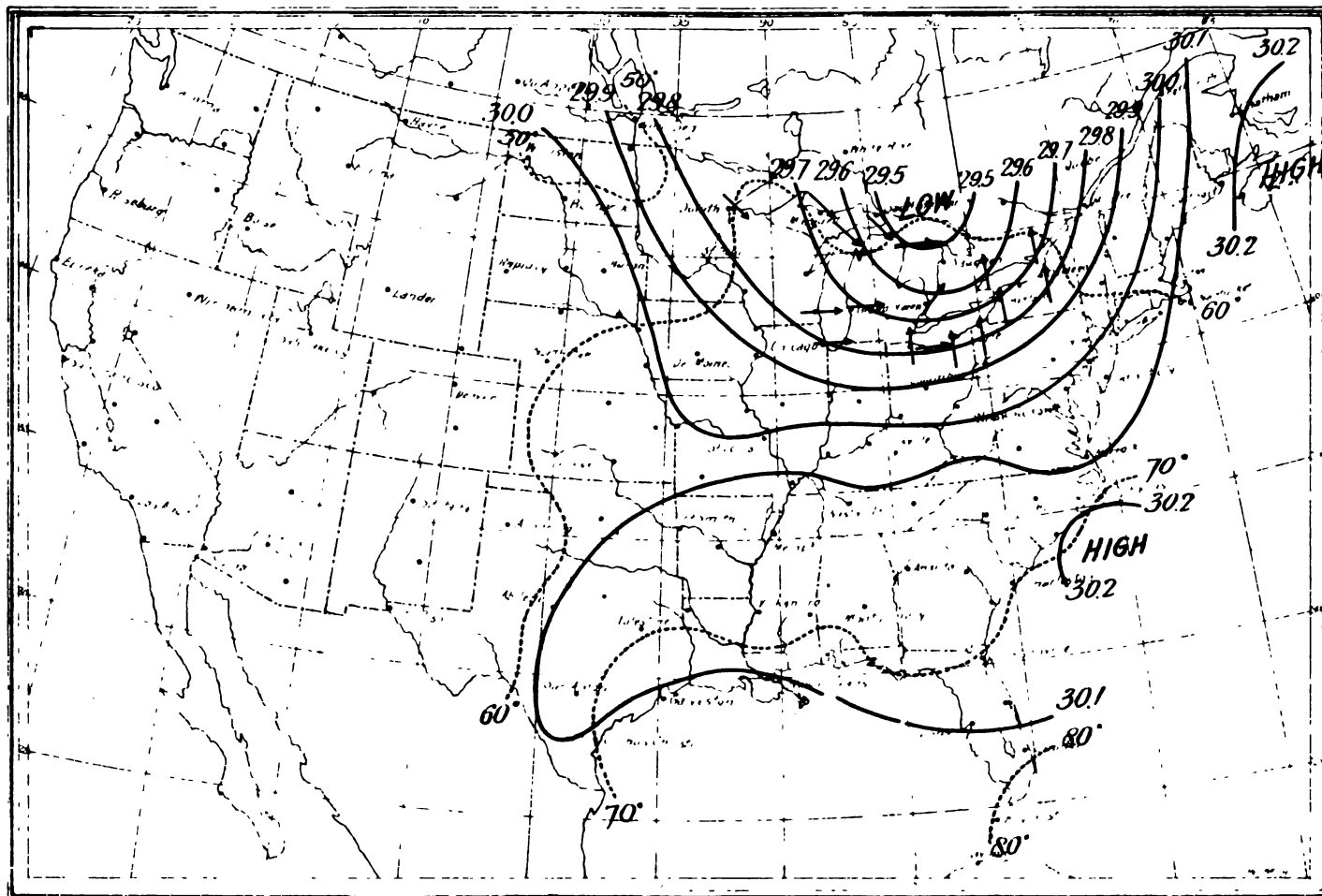
Chart CCCCXXXII.

September 29, 1881—3 p. m.





September 14, 1882—7 a. m.



September 14, 1882—3 p. m.

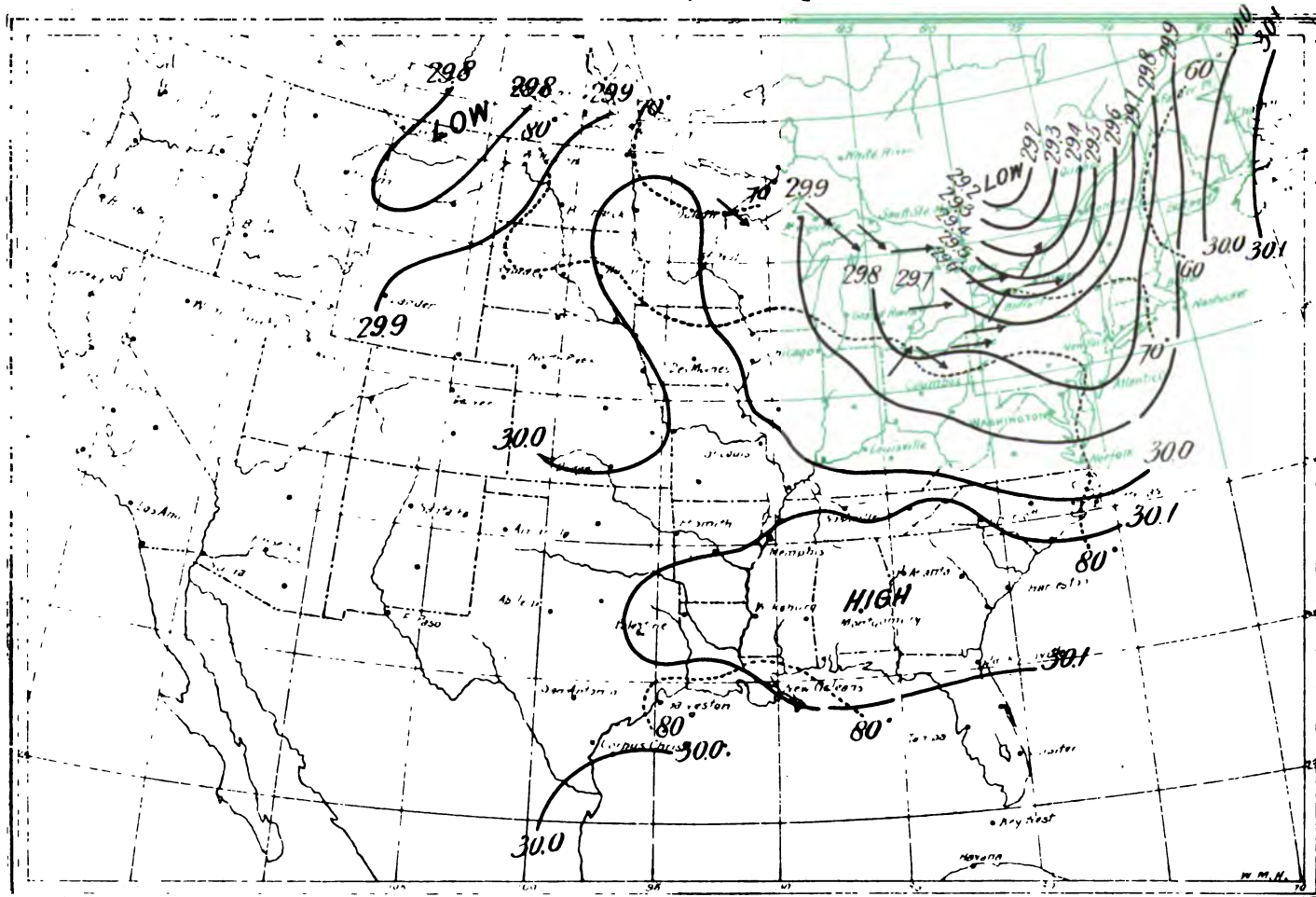


Chart CCCCXXXVII.

September 23, 1883—7 a. m.

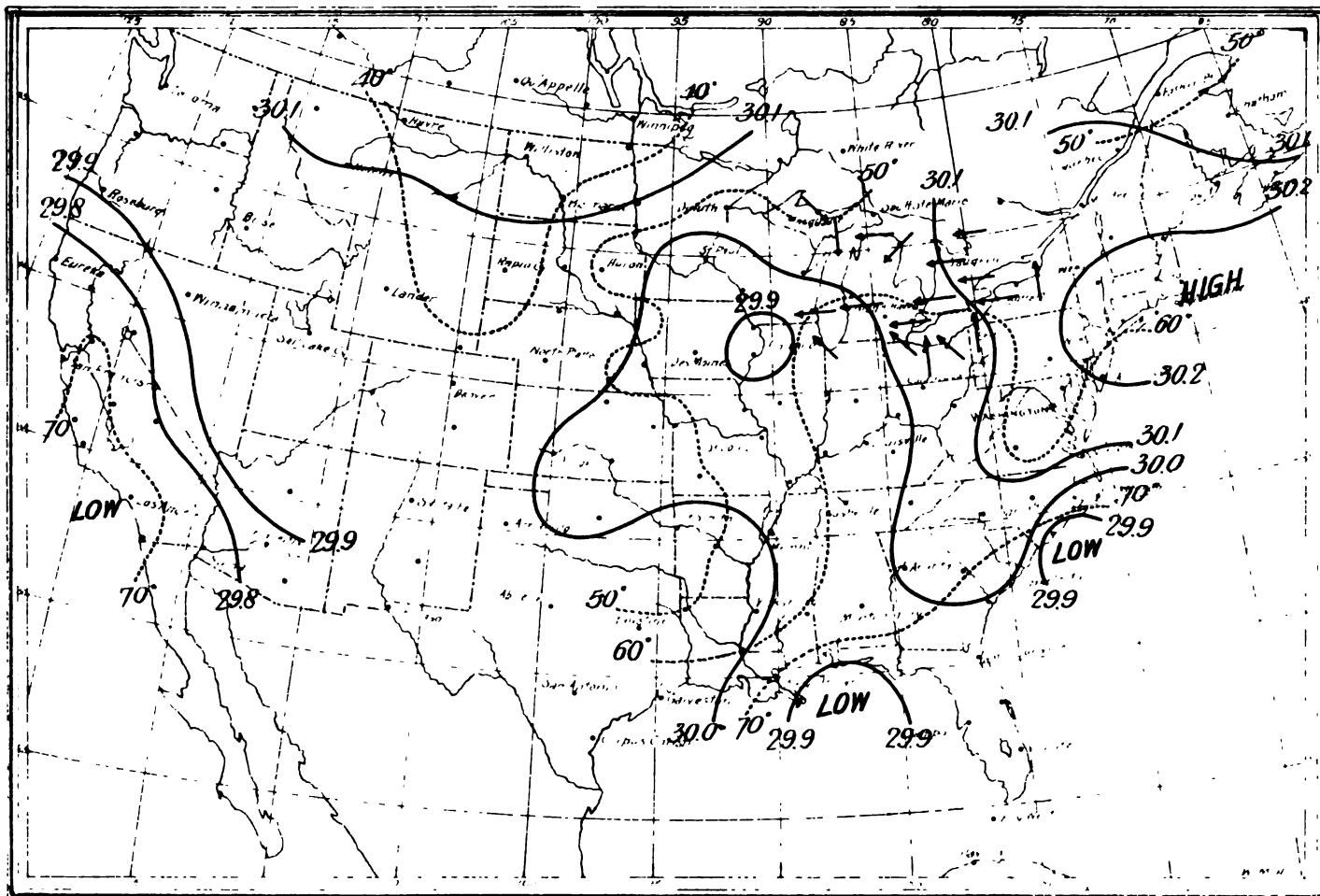


Chart CCCCXXXVIII.

September 23, 1883—3 p. m.

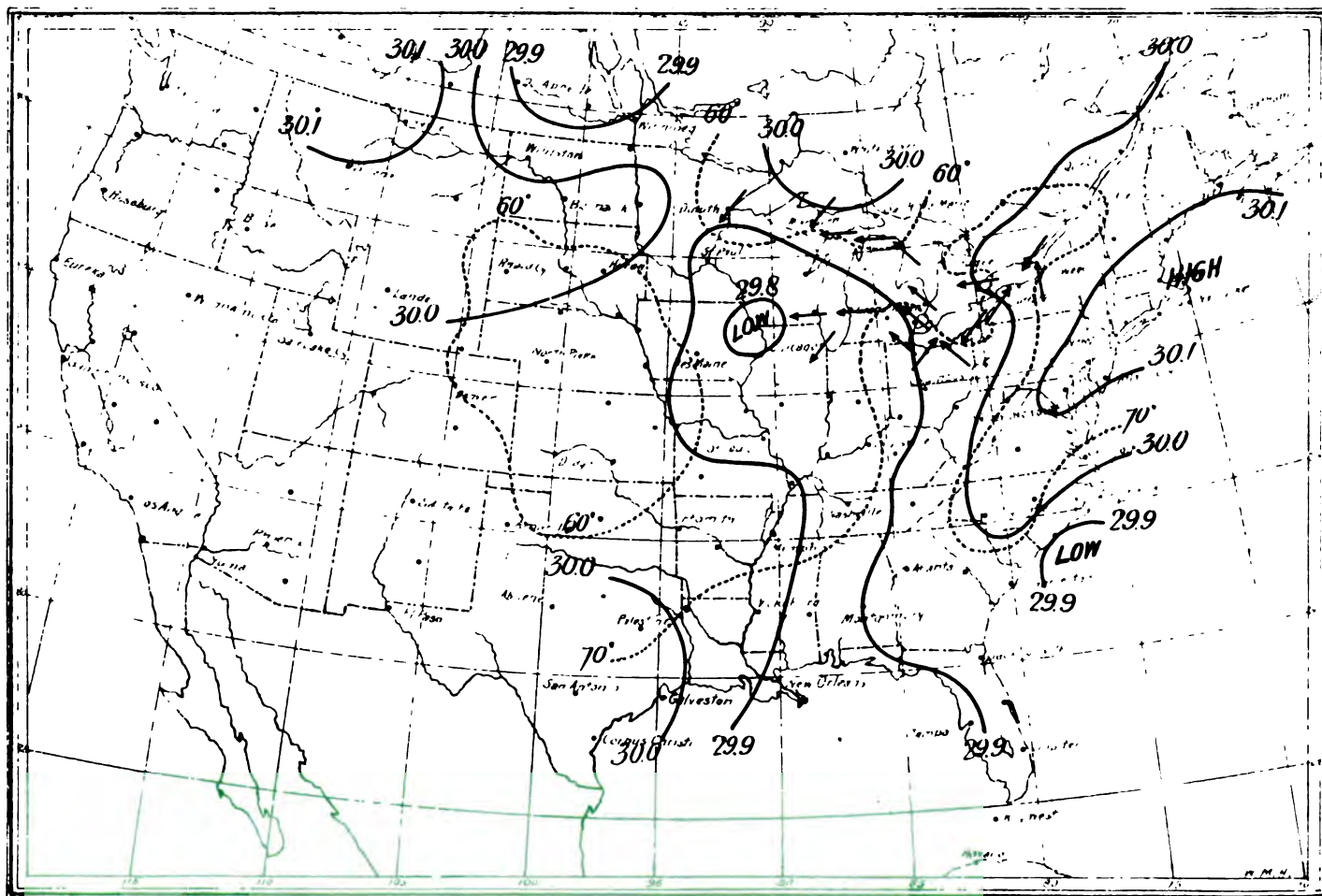


Chart 0000LXXIX.

September 24, 1883—7 a. m.

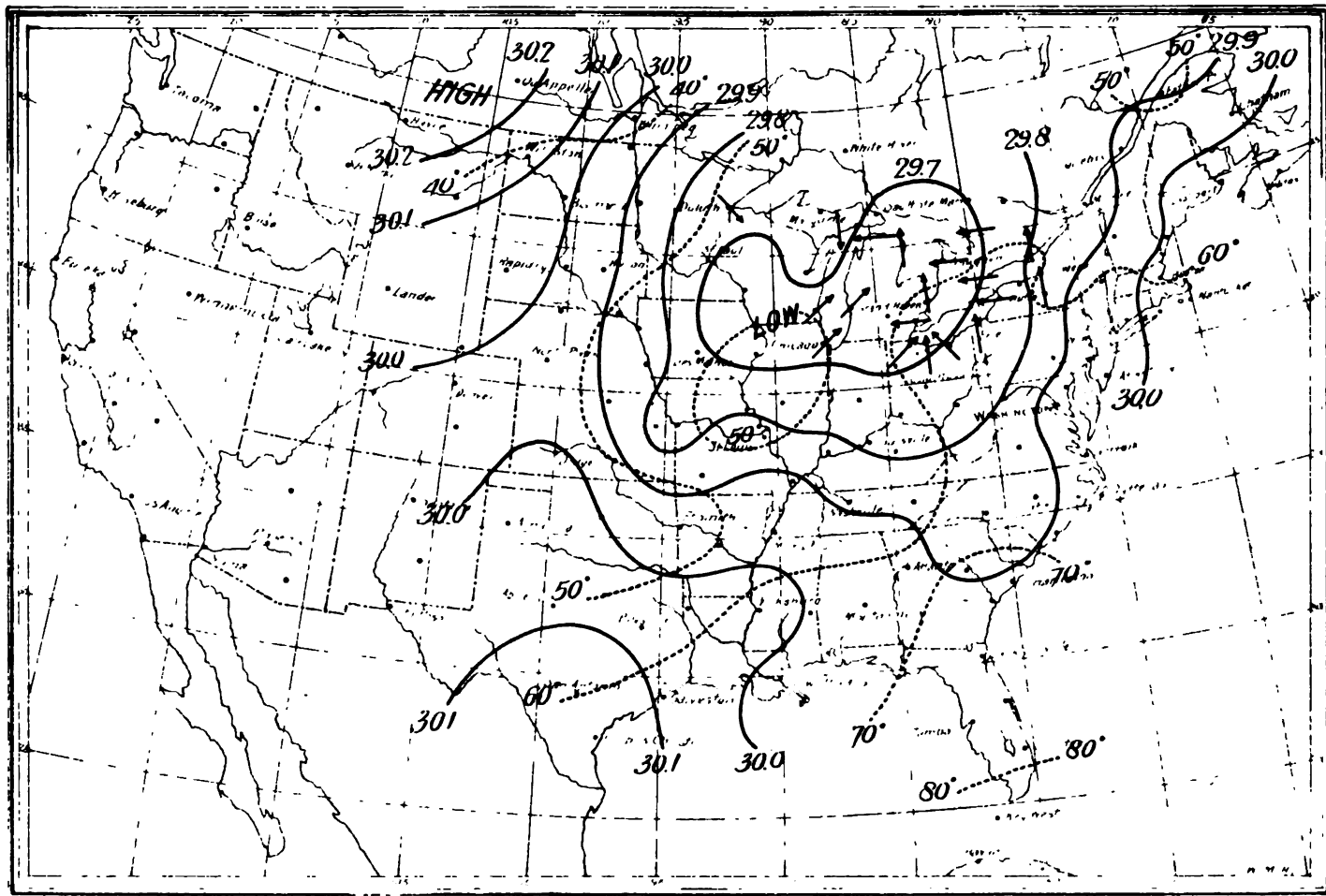


Chart 0000LXXX.

September 24, 1883—3 p. m.

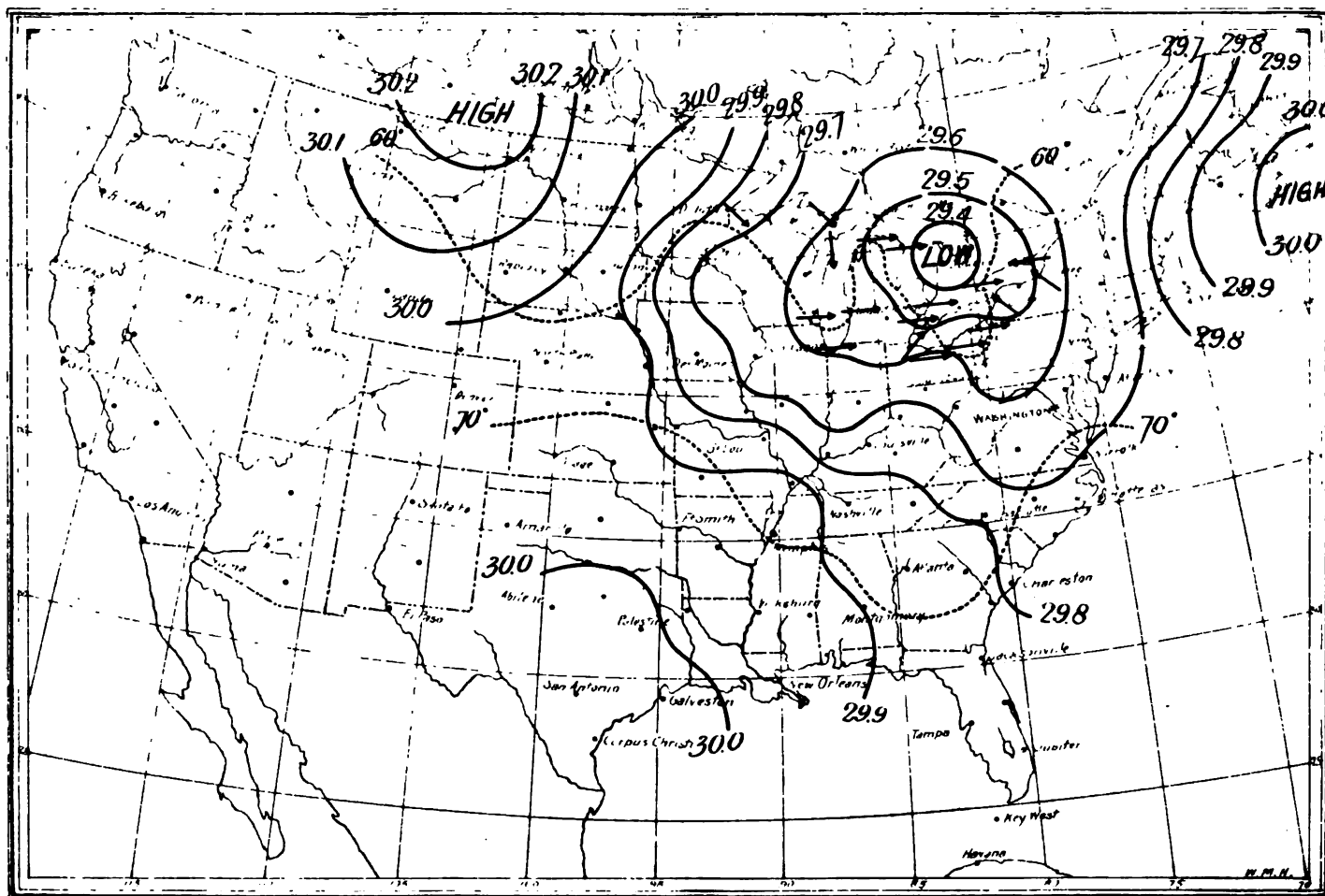


Chart CCCCXXXI.

September 23, 1884—7 a. m.

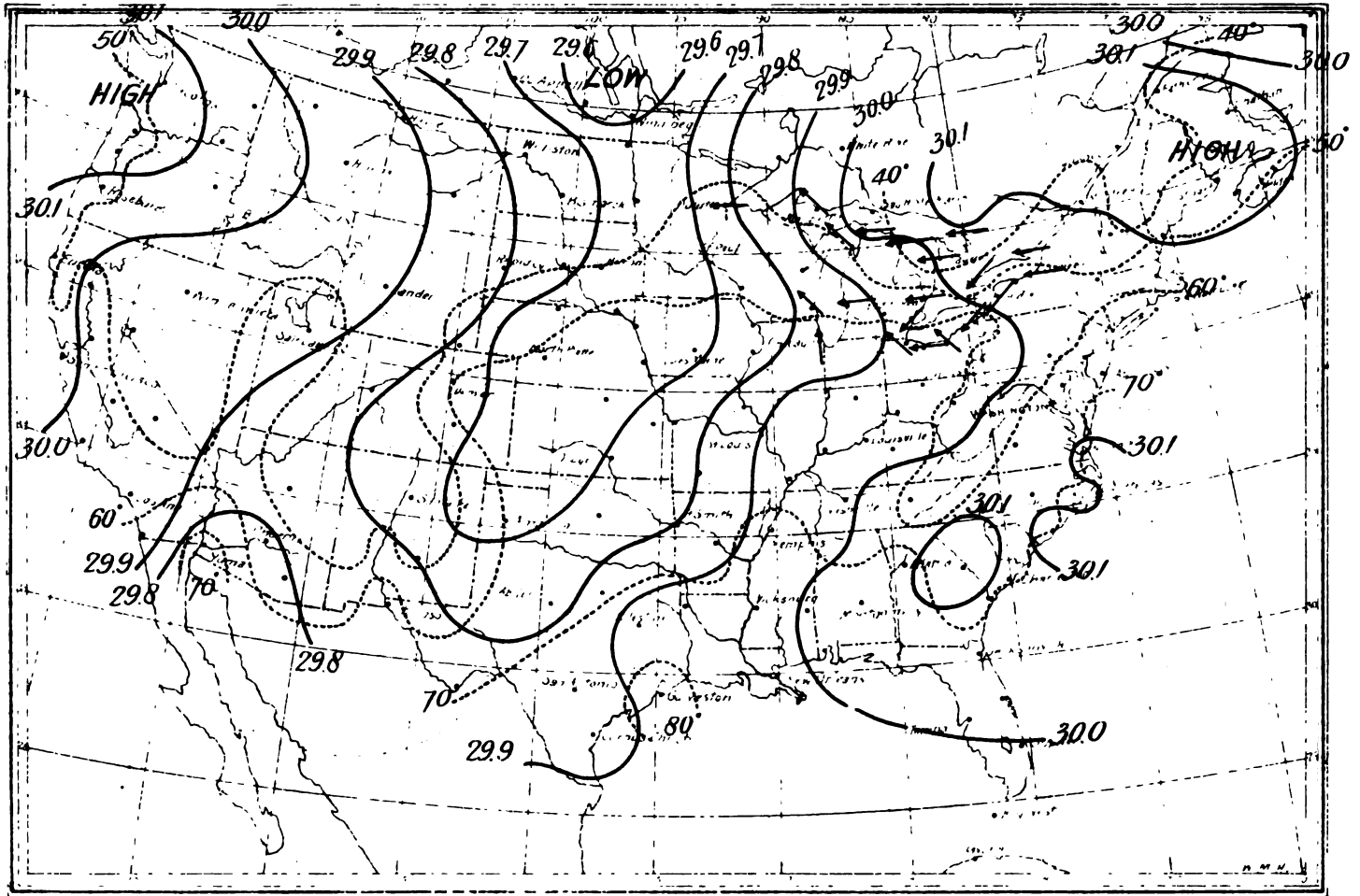
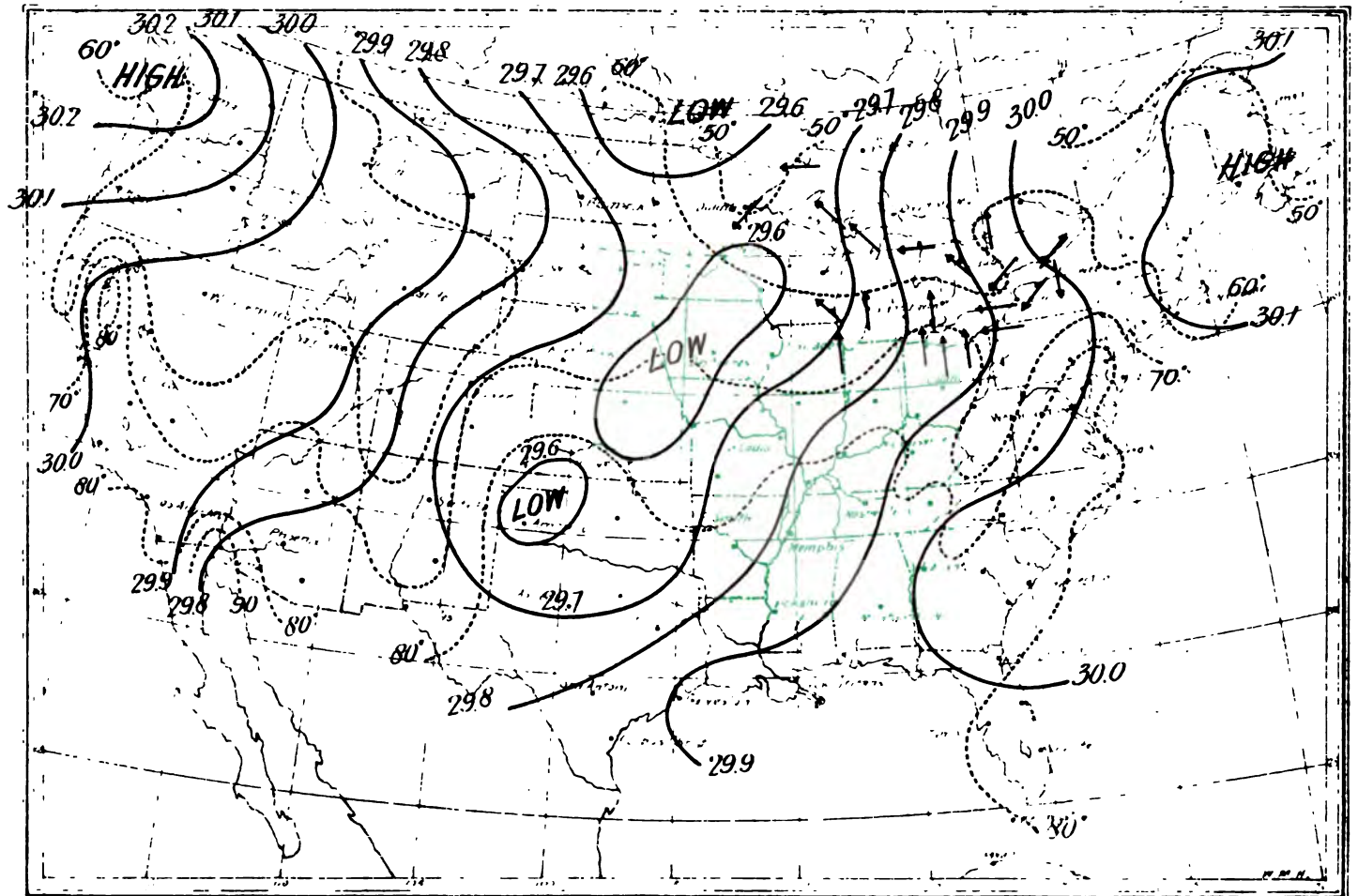


Chart CCCCXXXII.

September 23, 1884—3 p. m.



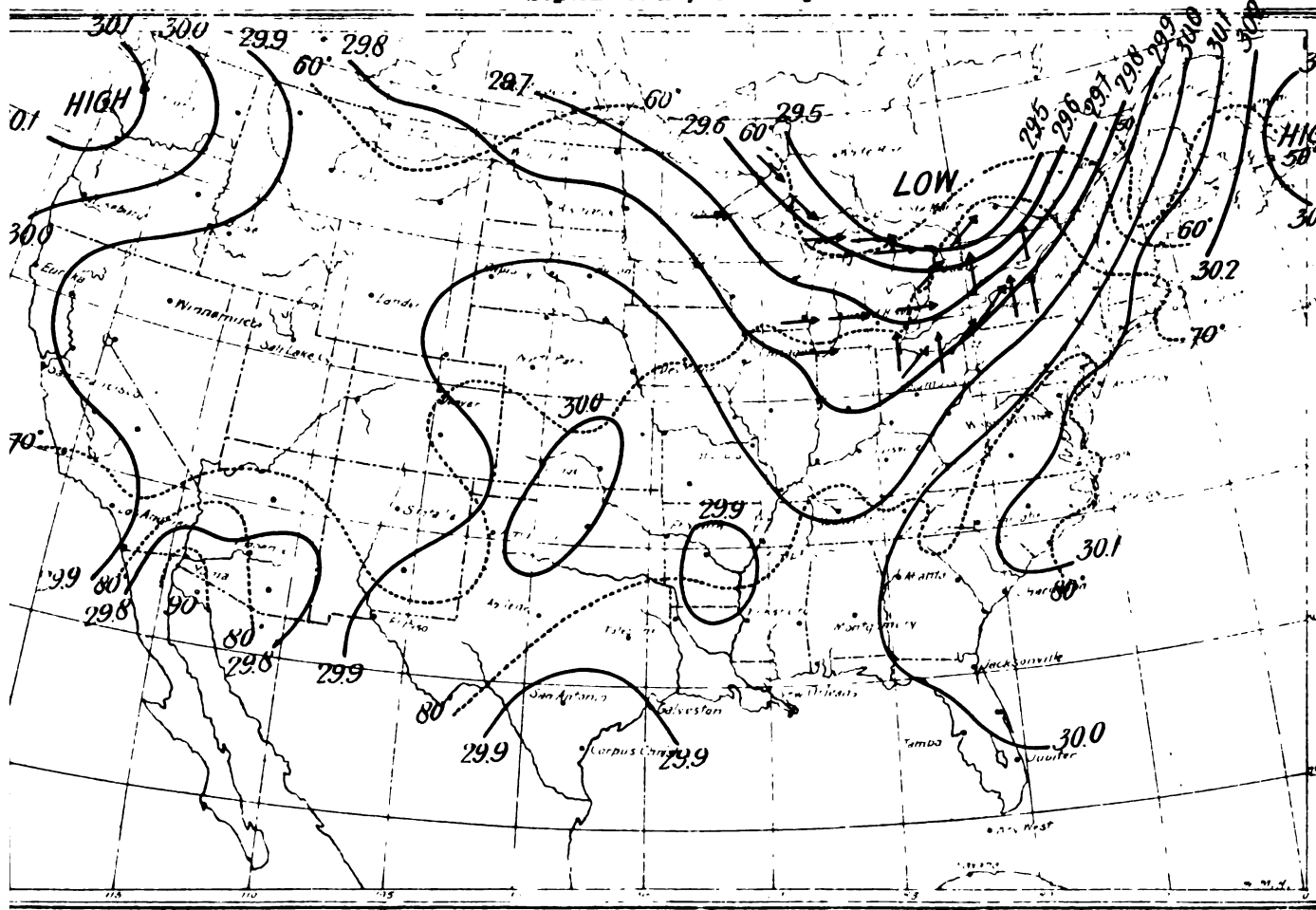
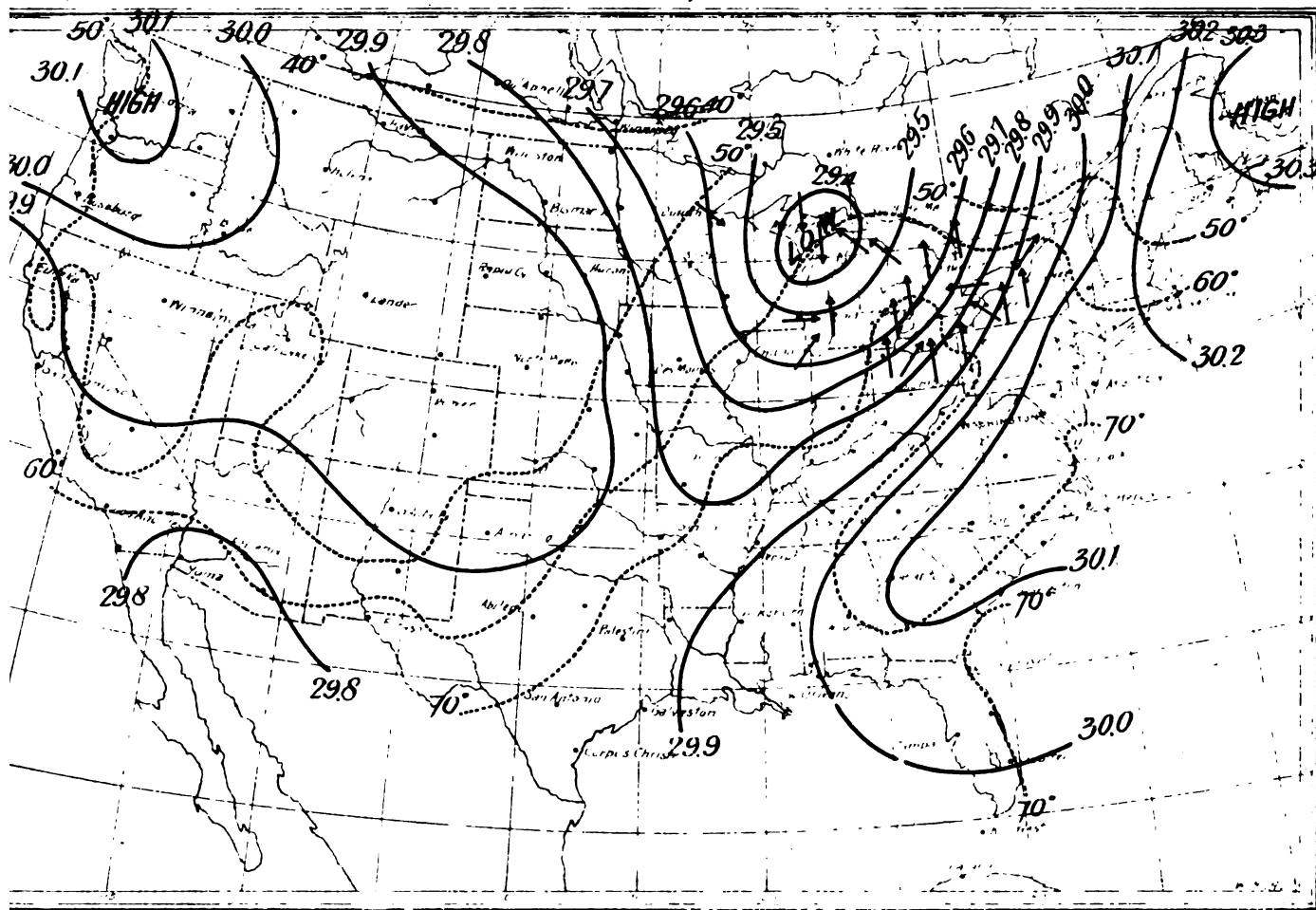


Chart CCOOLXXXV.

September 7, 1885—7 a. m.

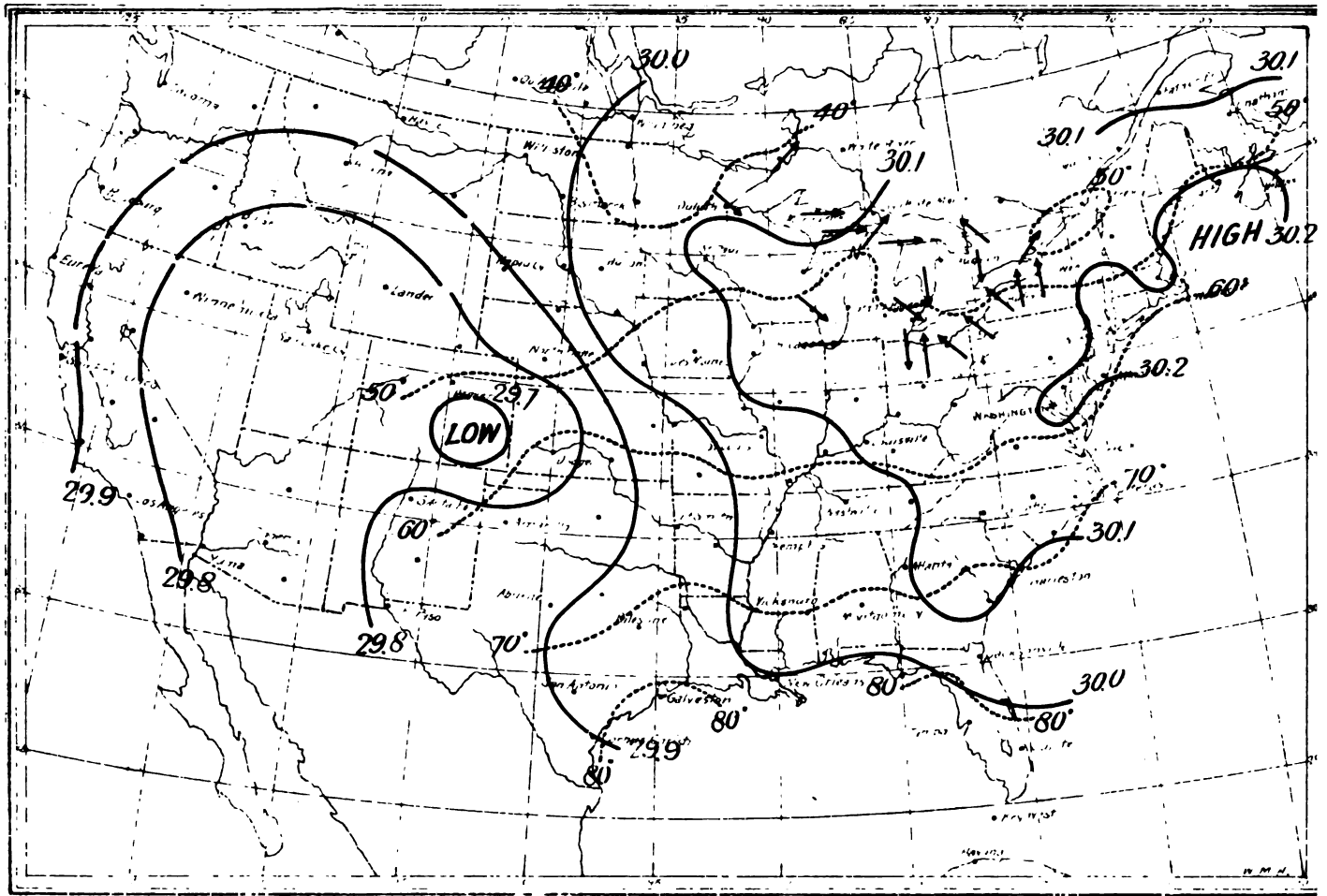


Chart CCOOLXXXVI.

September 7, 1885—3 p. m.

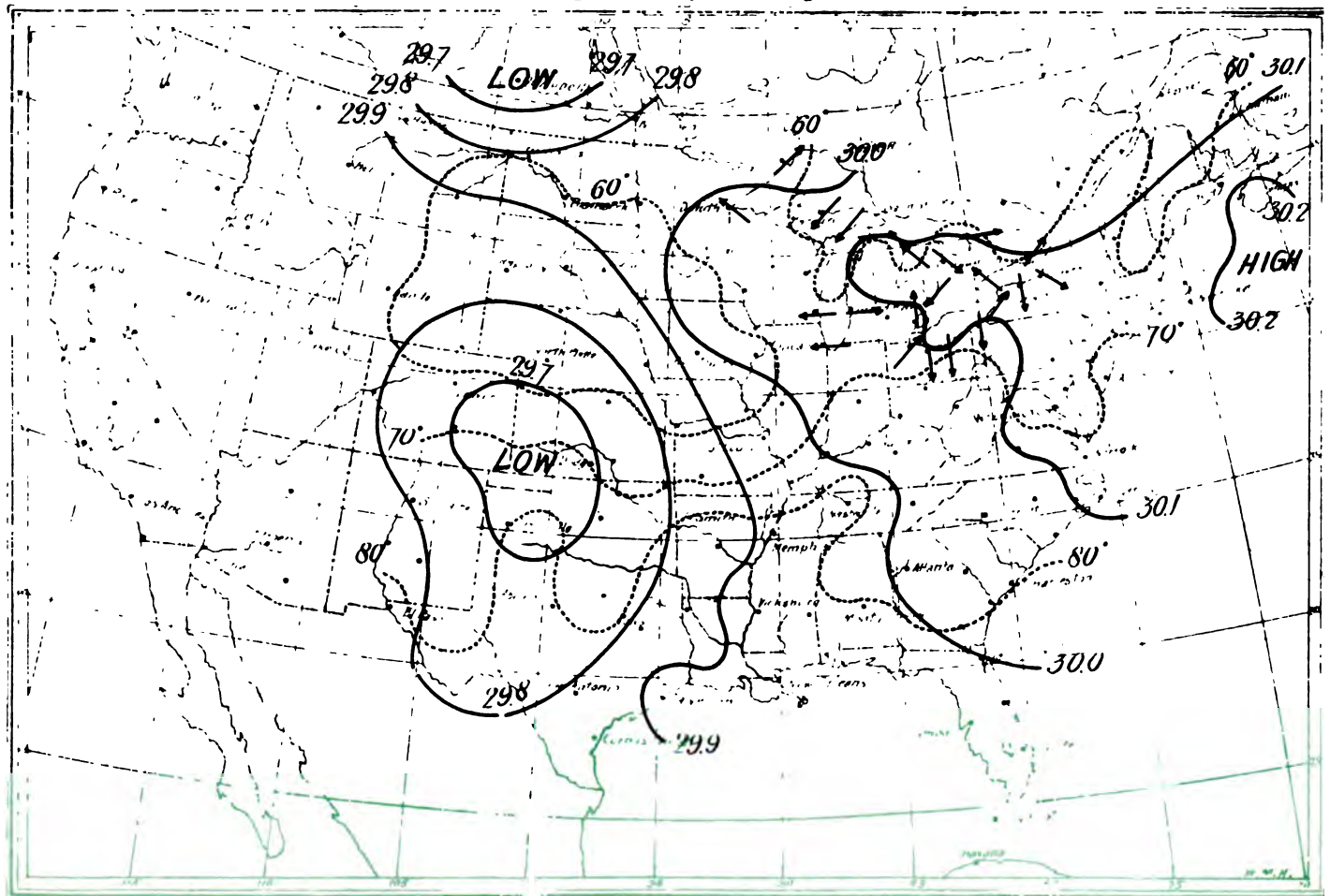


Chart 0000LXXXVII.

September 8, 1885—7 a. m.

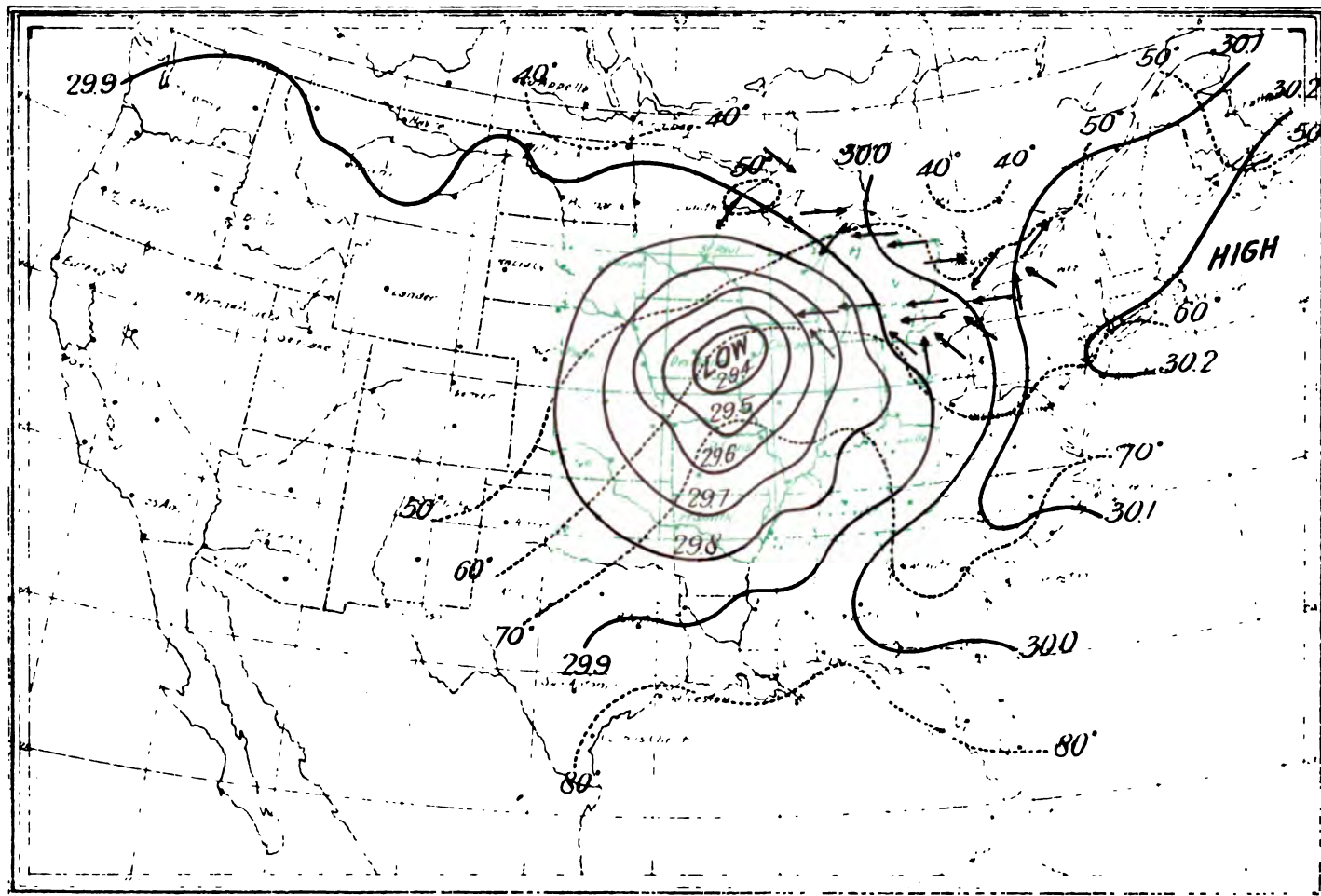


Chart 0000LXXXVIII.

September 8, 1885—3 p. m.

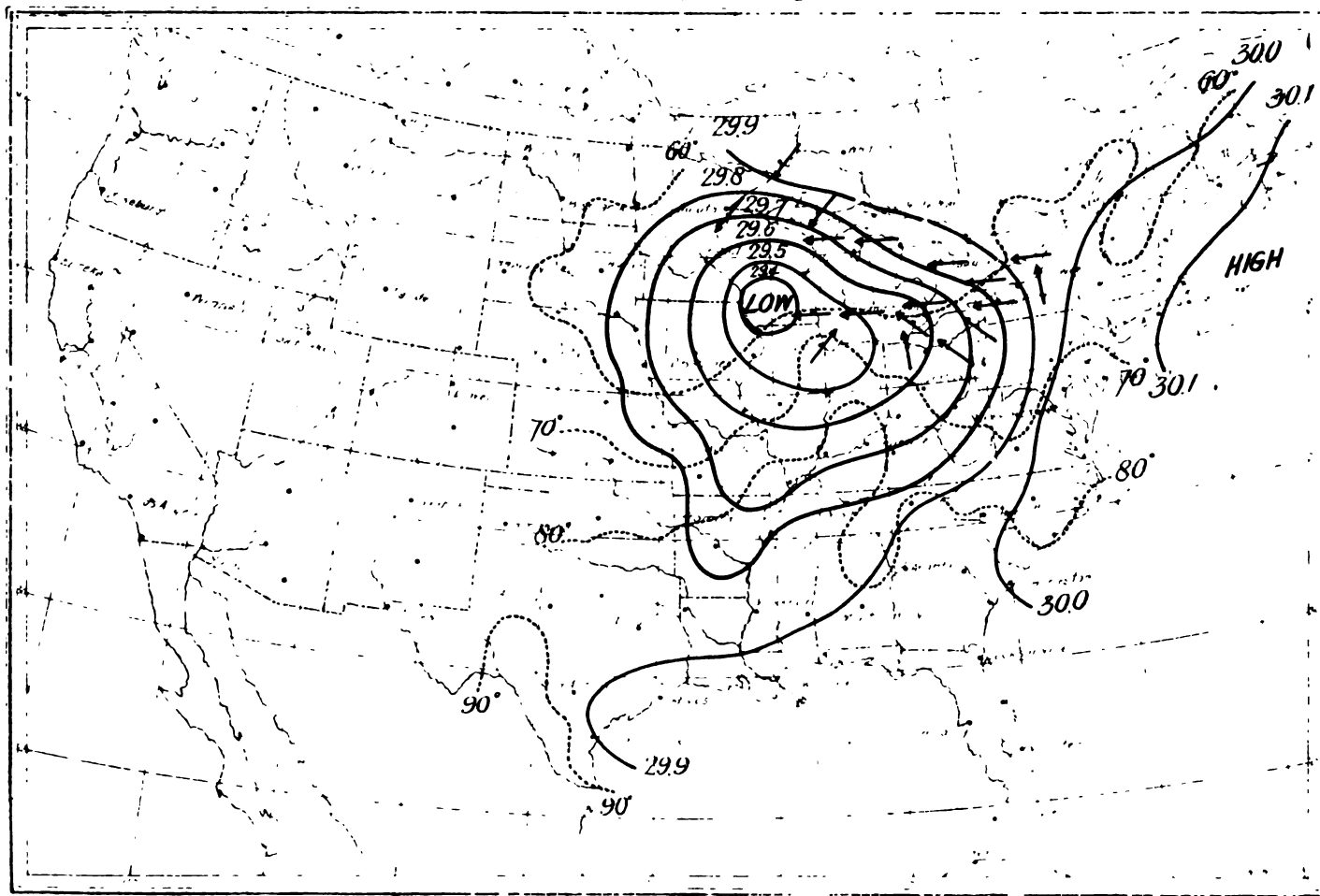


Chart 0000LXXXIX.

September 25, 1888—8 a. m.

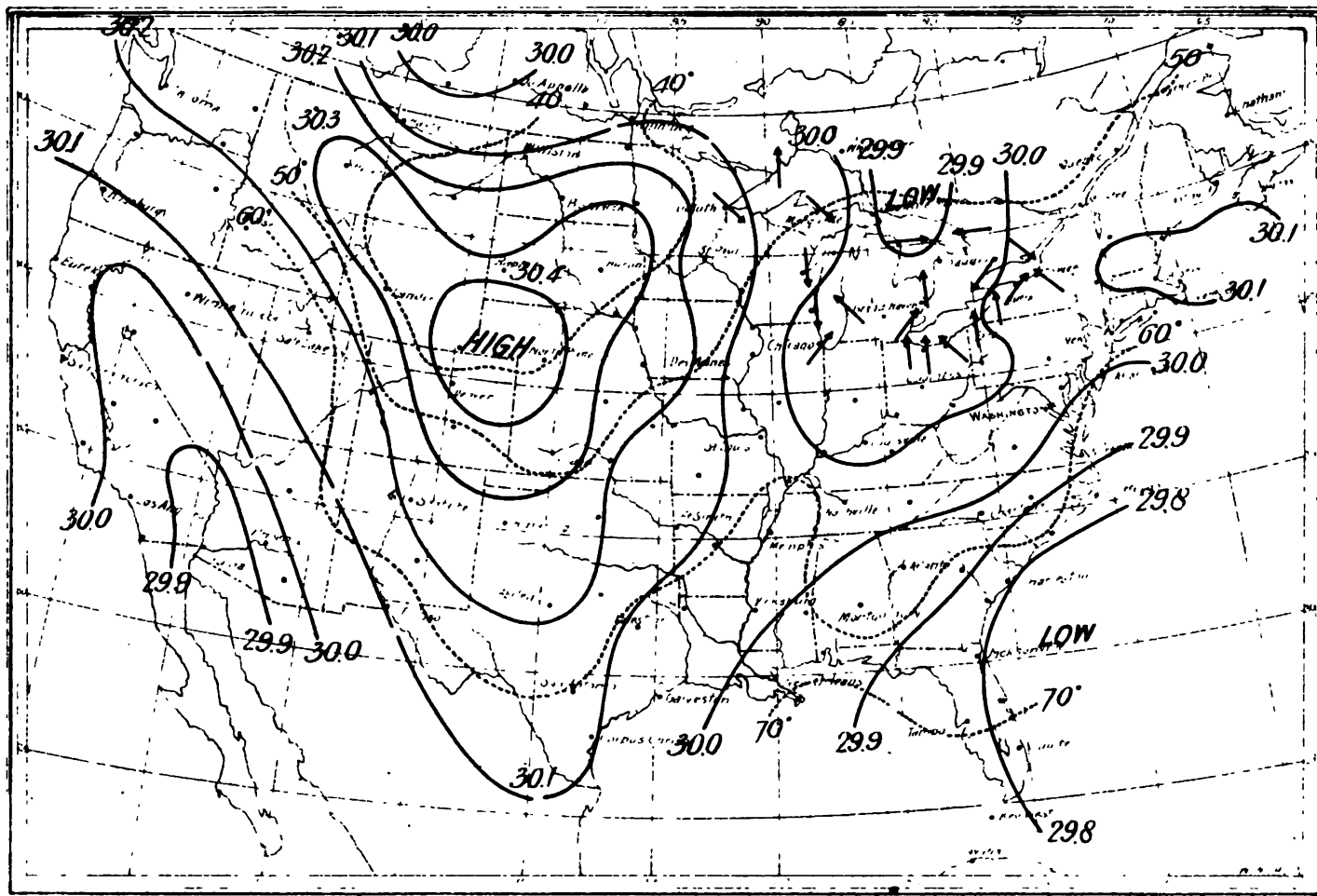


Chart 0000XO.

September 25, 1888—8 p. m.

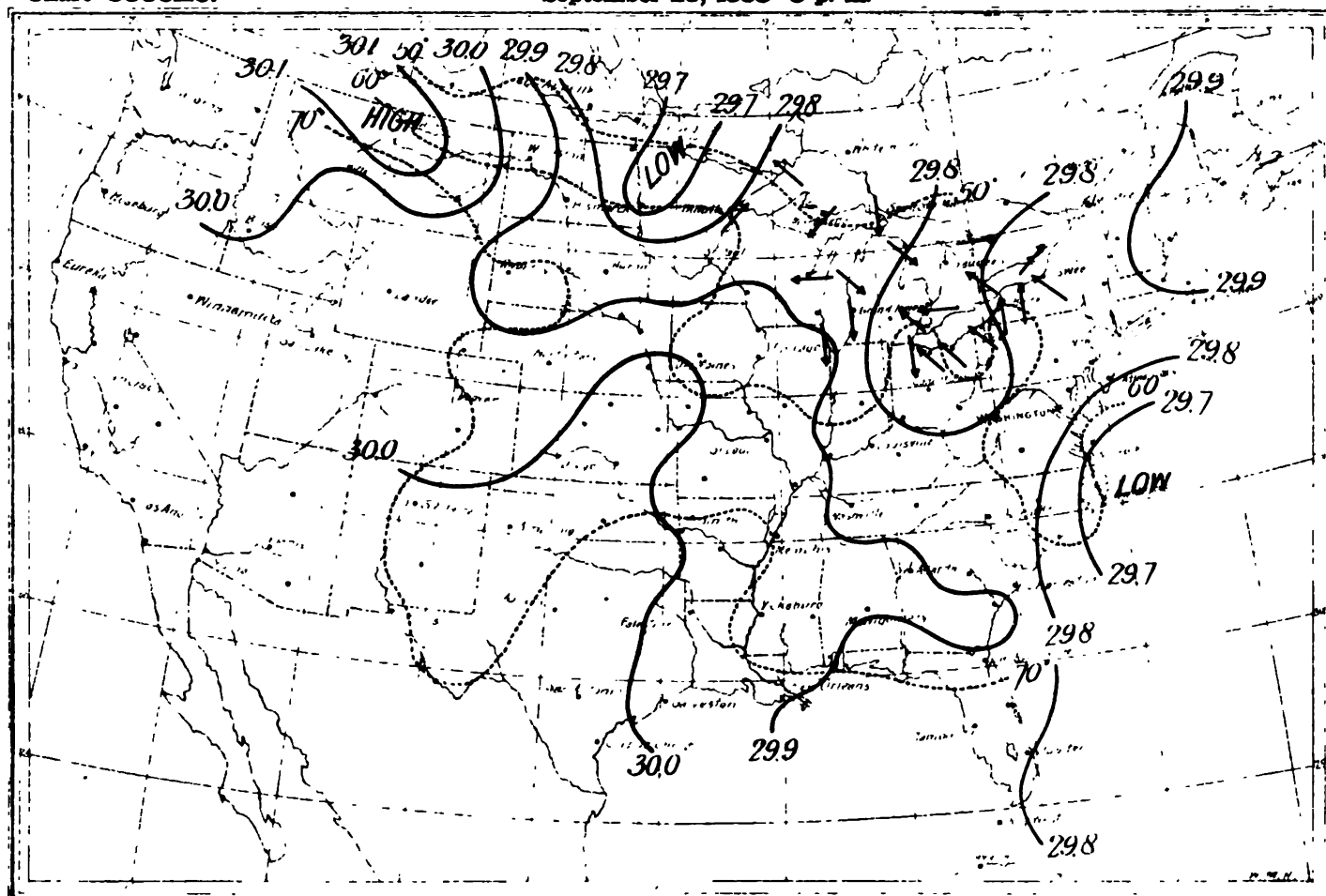


Chart 0000XOI.

September 26, 1888—8 a. m.

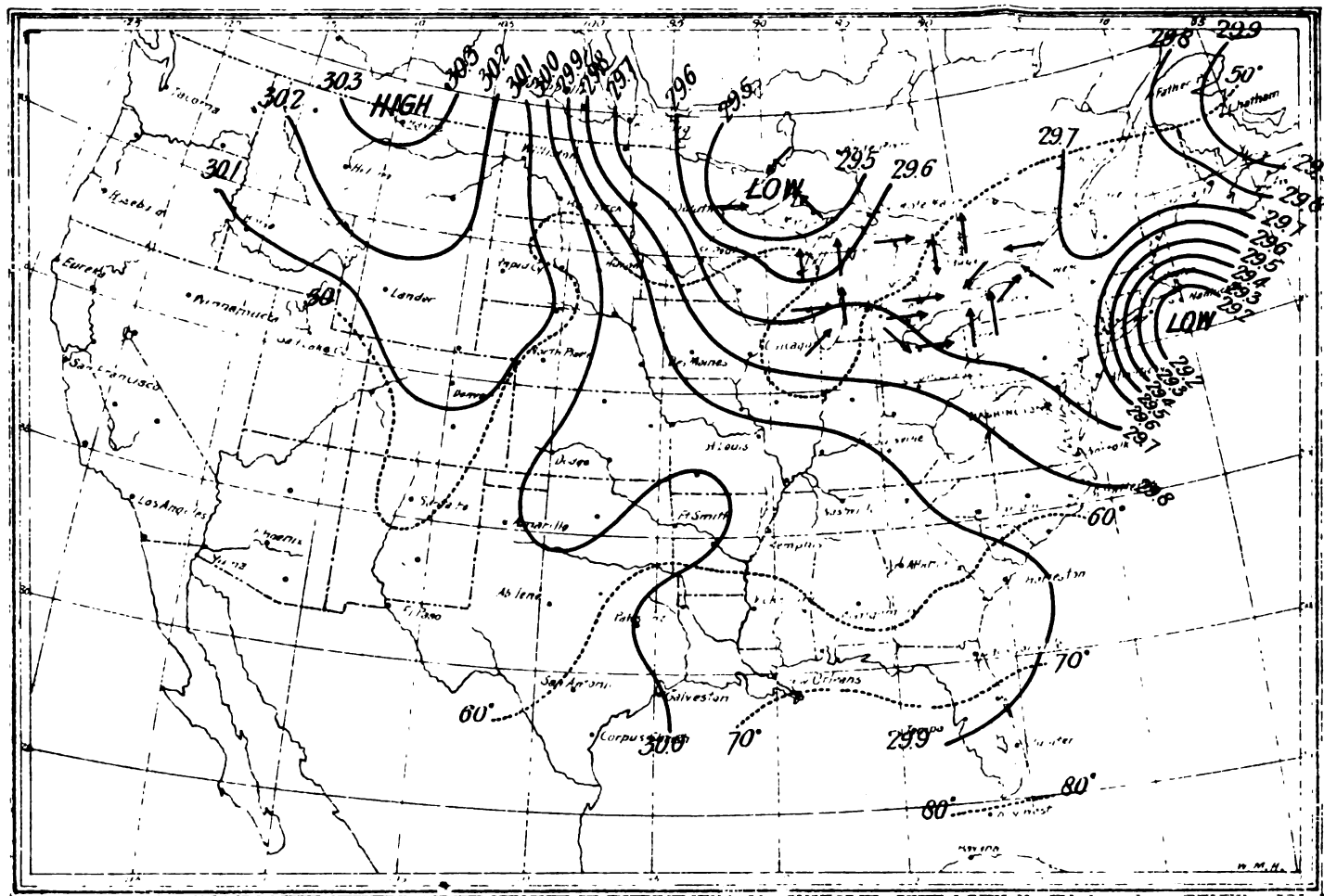


Chart 0000XOII.

September 26, 1888—8 p. m.

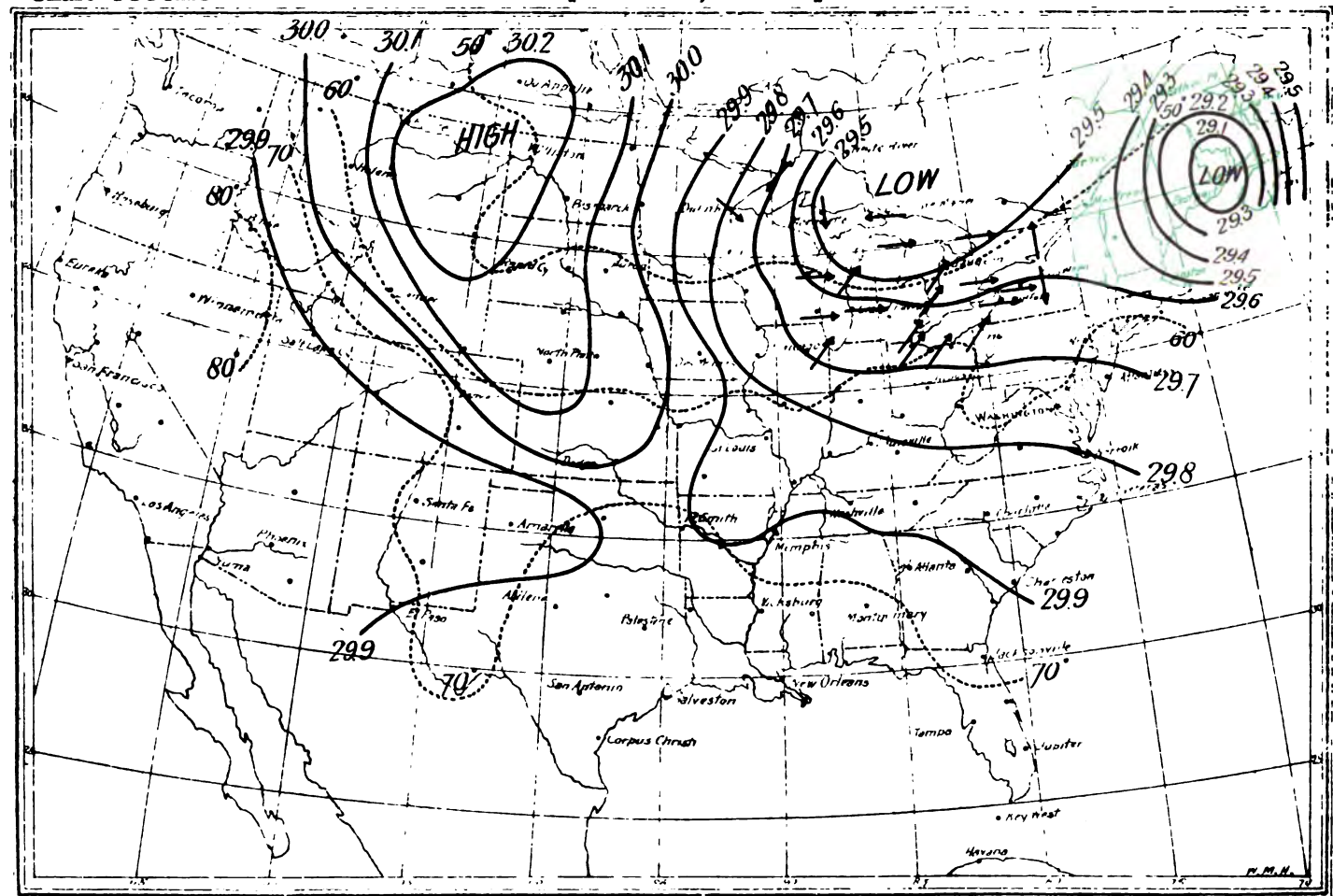


Chart OOOOXOIII.

September 18, 1889—8 a. m.

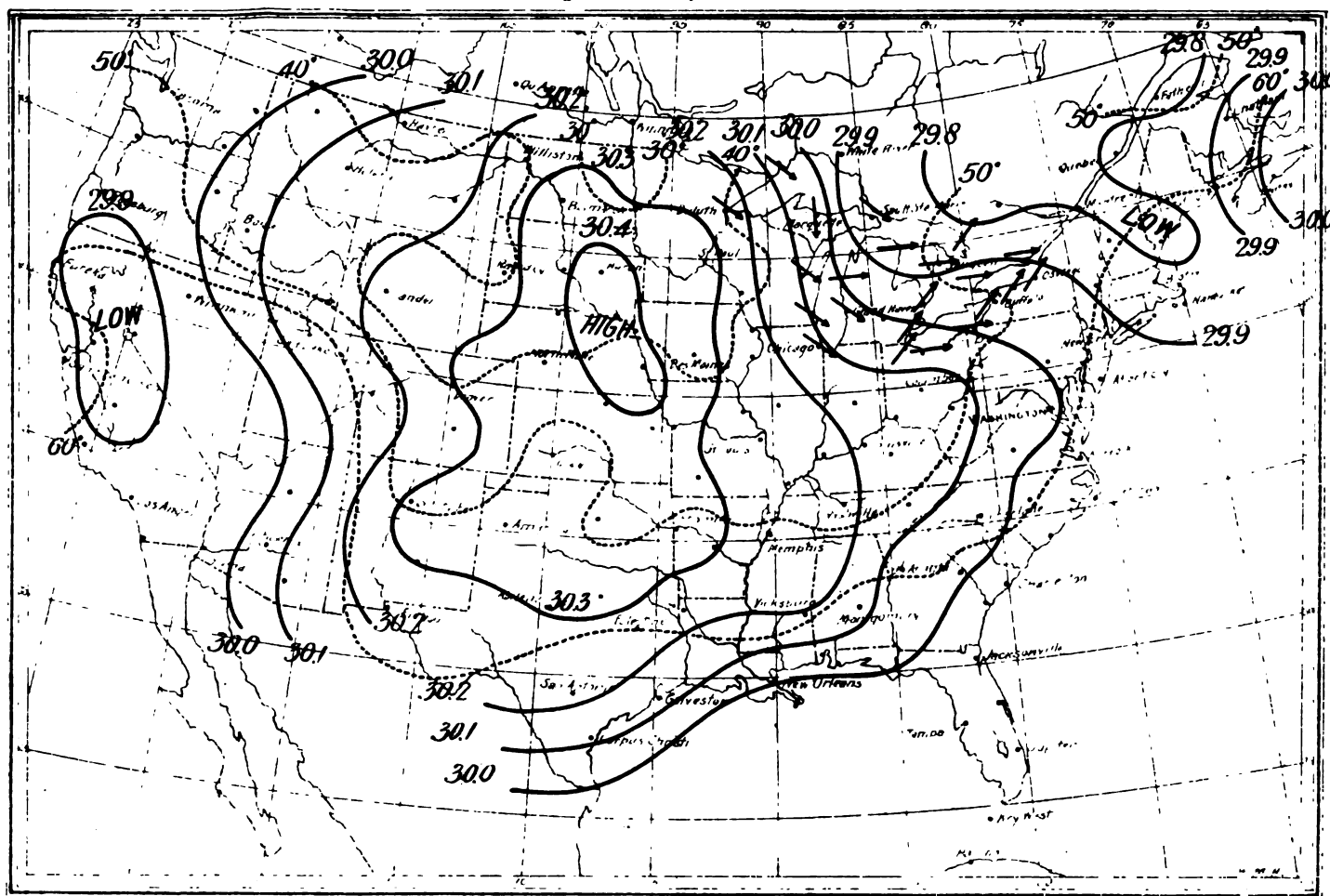


Chart OOOOXOIV.

September 18, 1889—8 p. m.

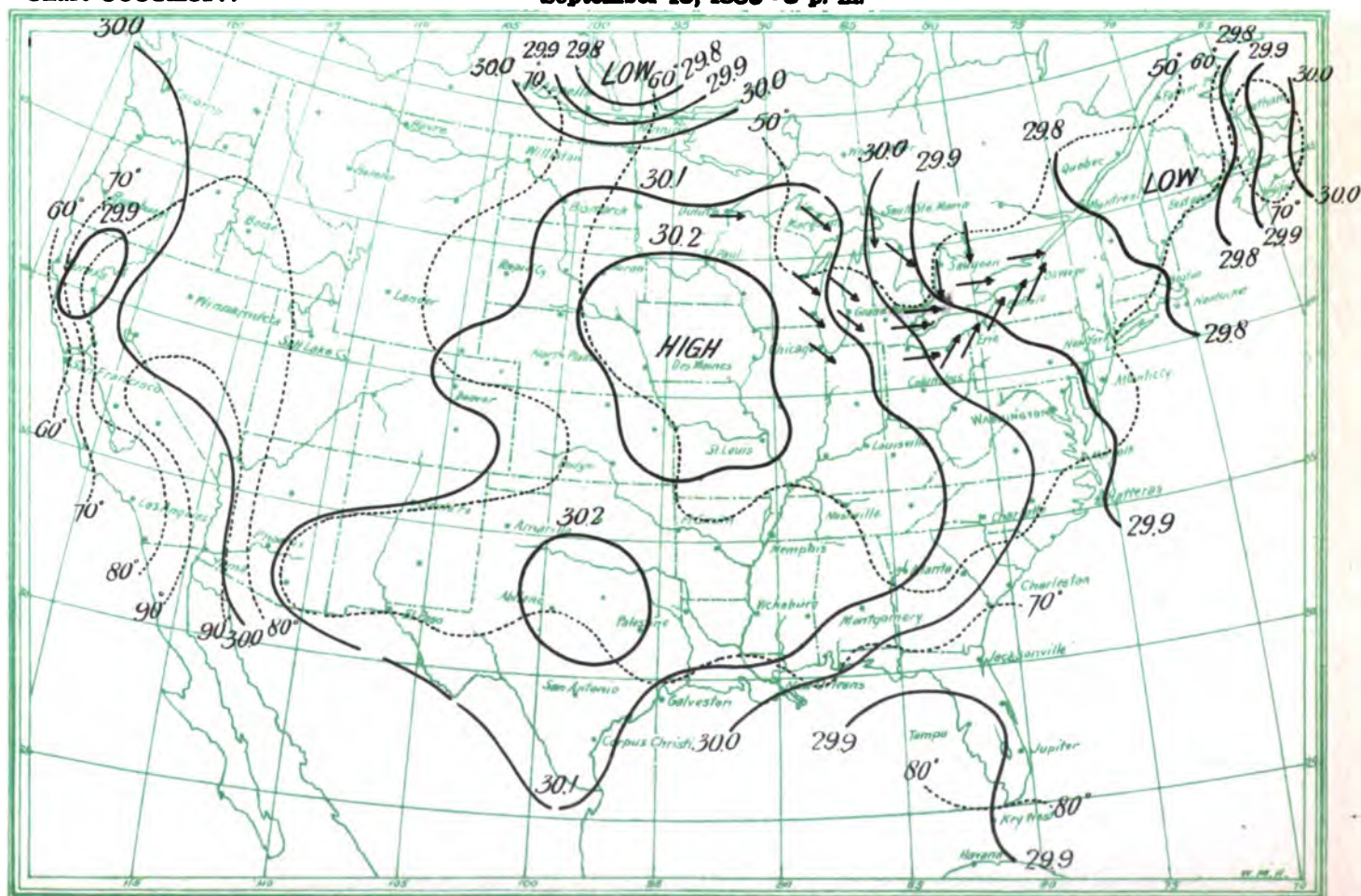


Chart 0000XOV.

September 19, 1889—8 a. m.

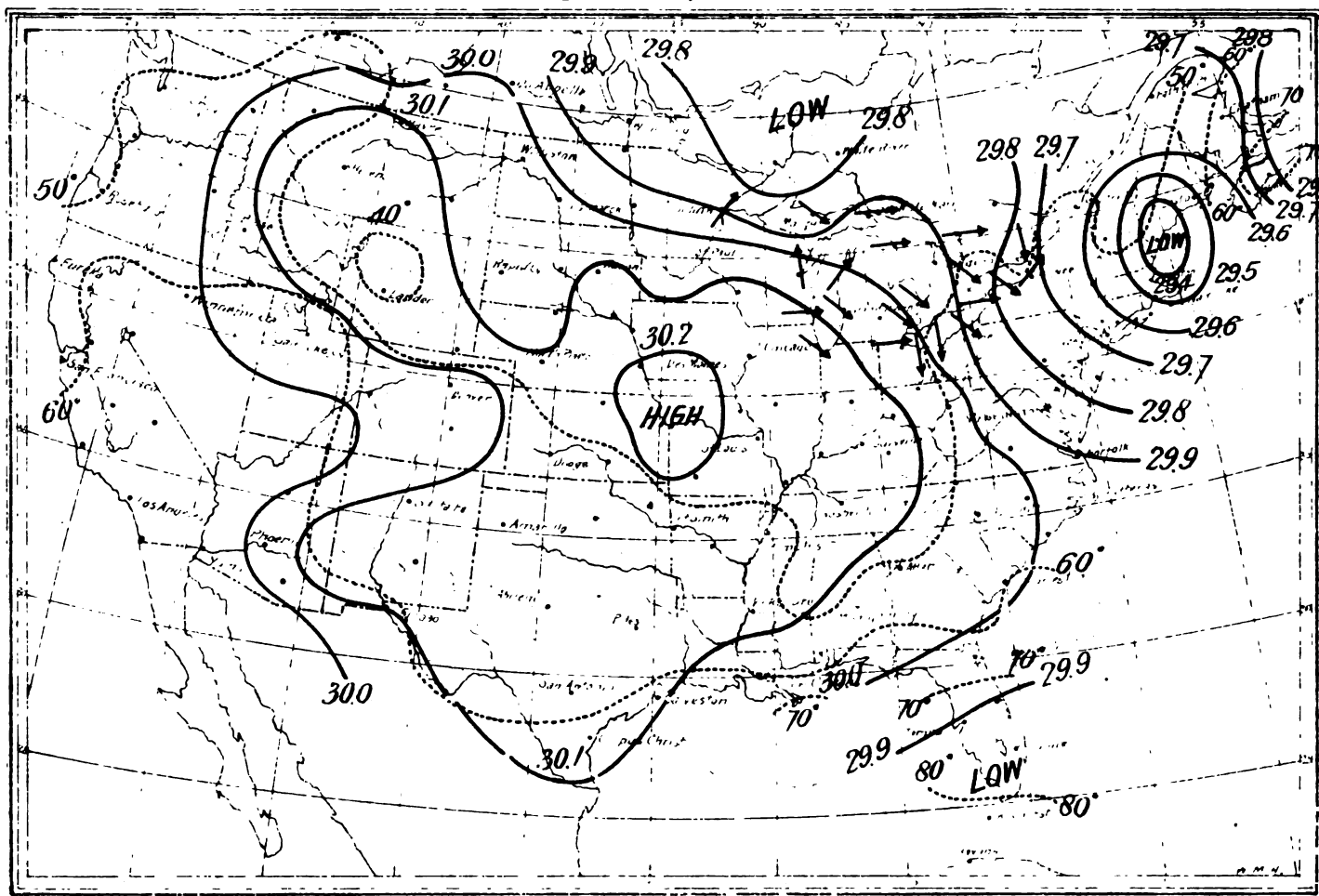


Chart 0000XOVI.

September 19, 1889—8 p. m.

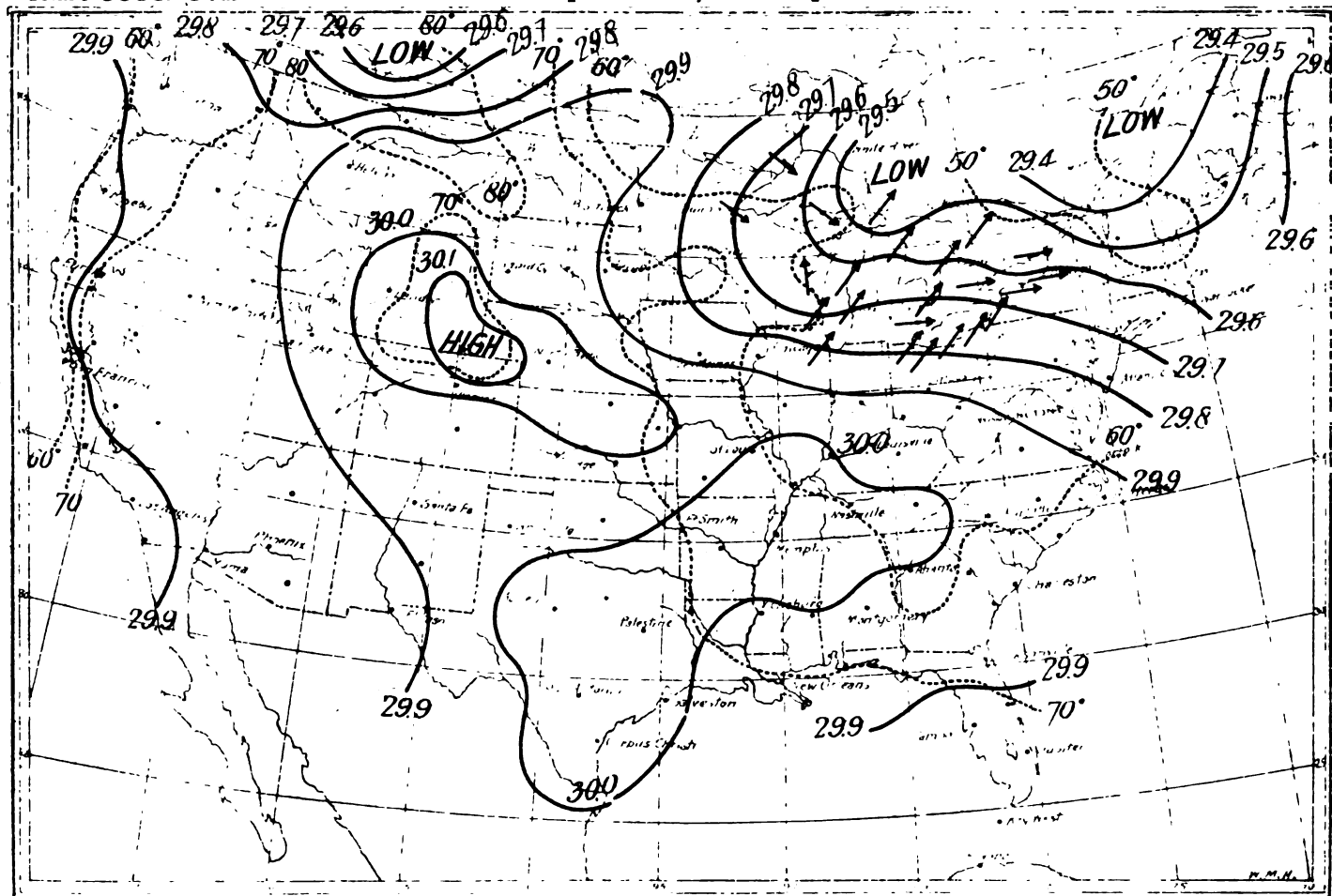


Chart CCCCCXVII.

September 14, 1891—8 a. m.

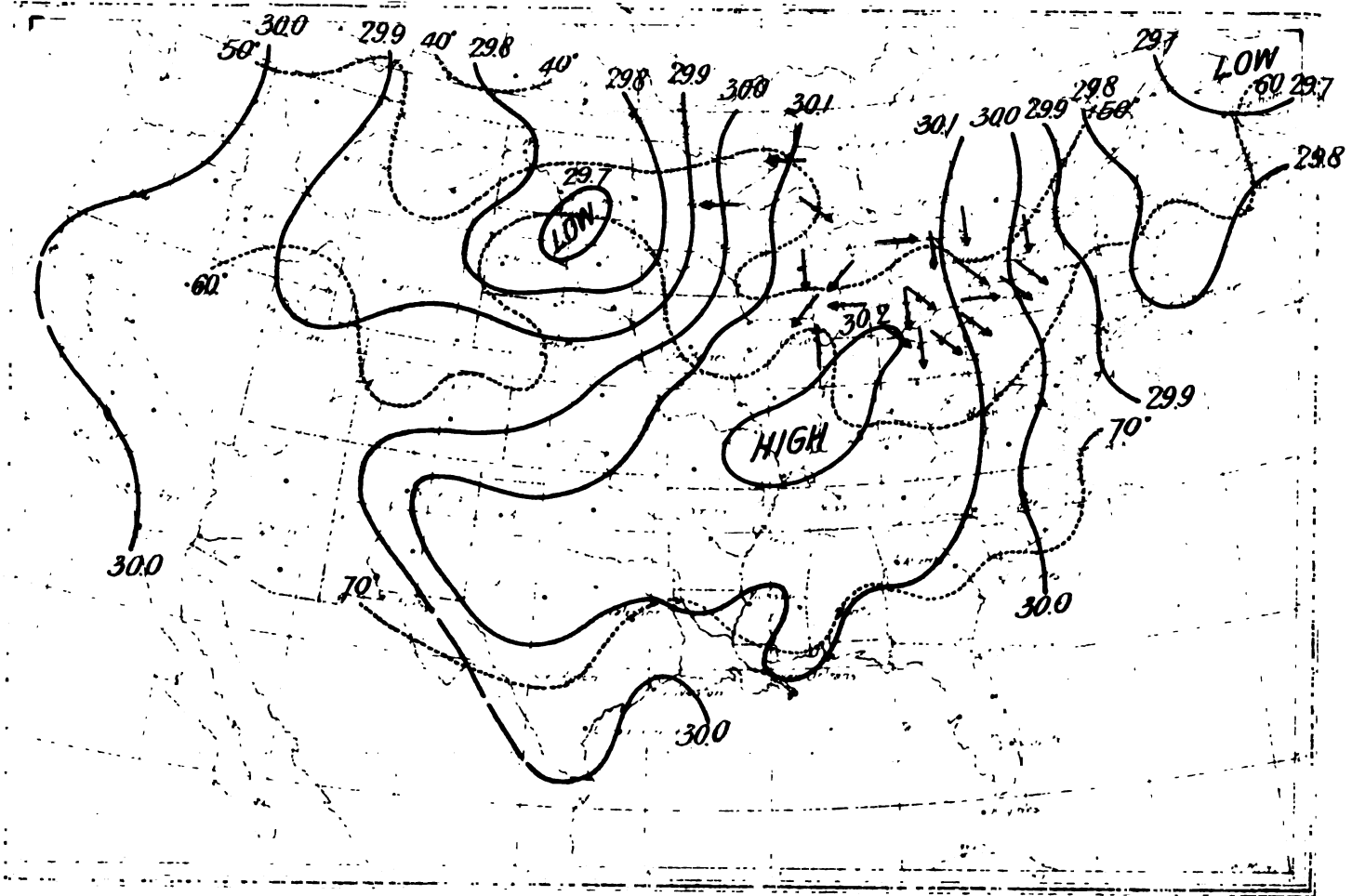


Chart CCCCCXVIII.

September 14, 1891—8 p. m.

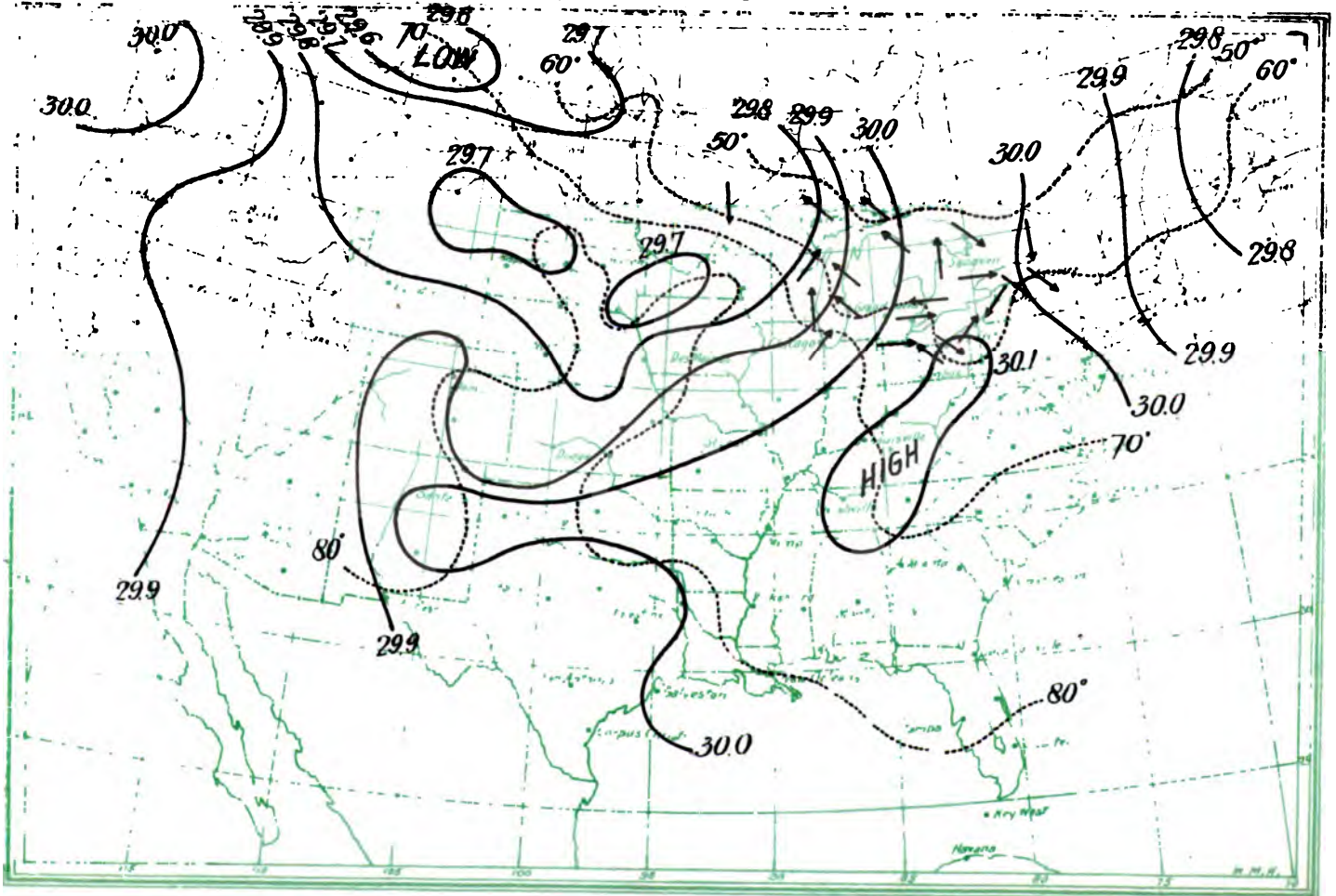


Chart OOOXOLX.

September 15, 1891—8 a. m.

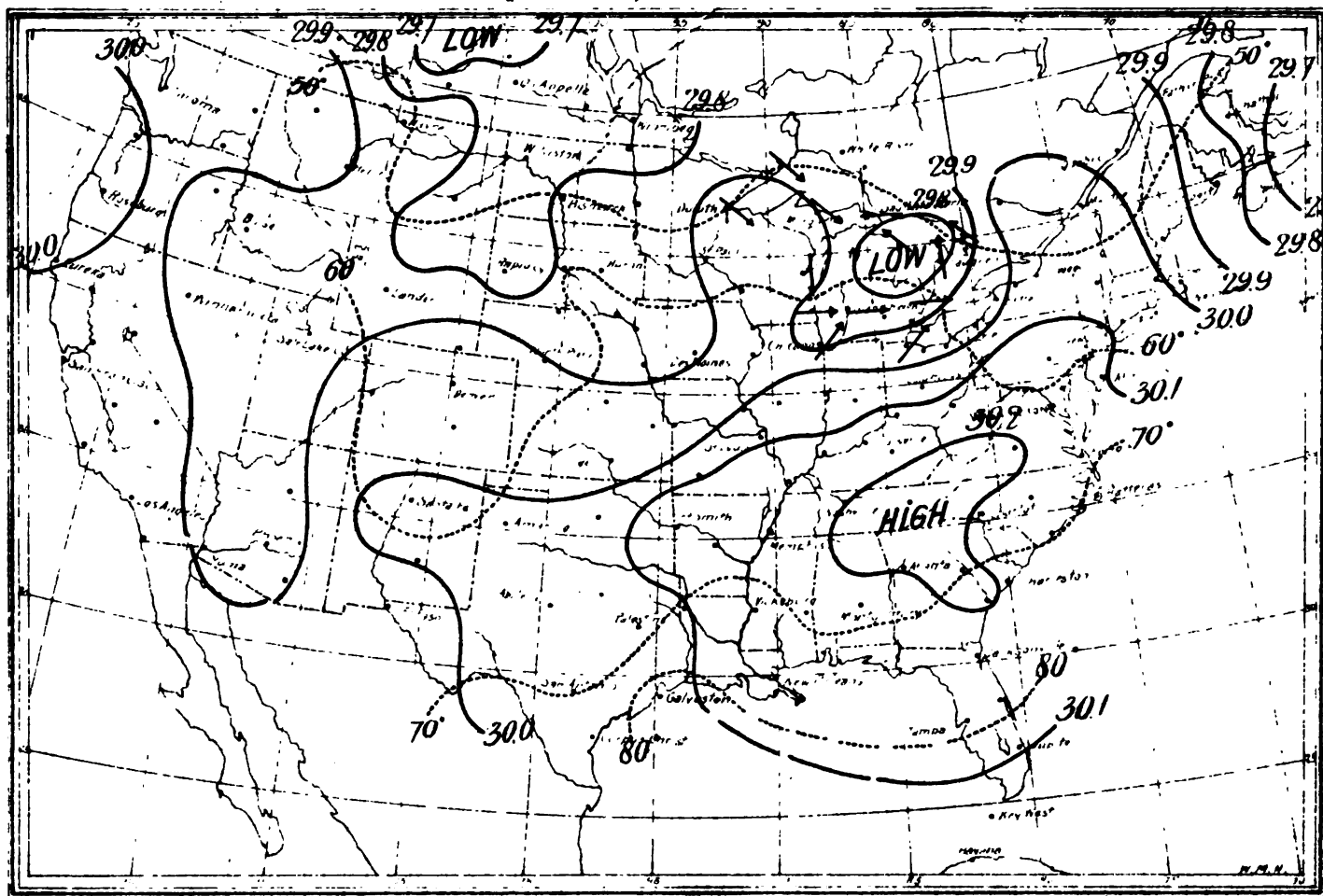


Chart D.

September 15, 1891—8 p. m.

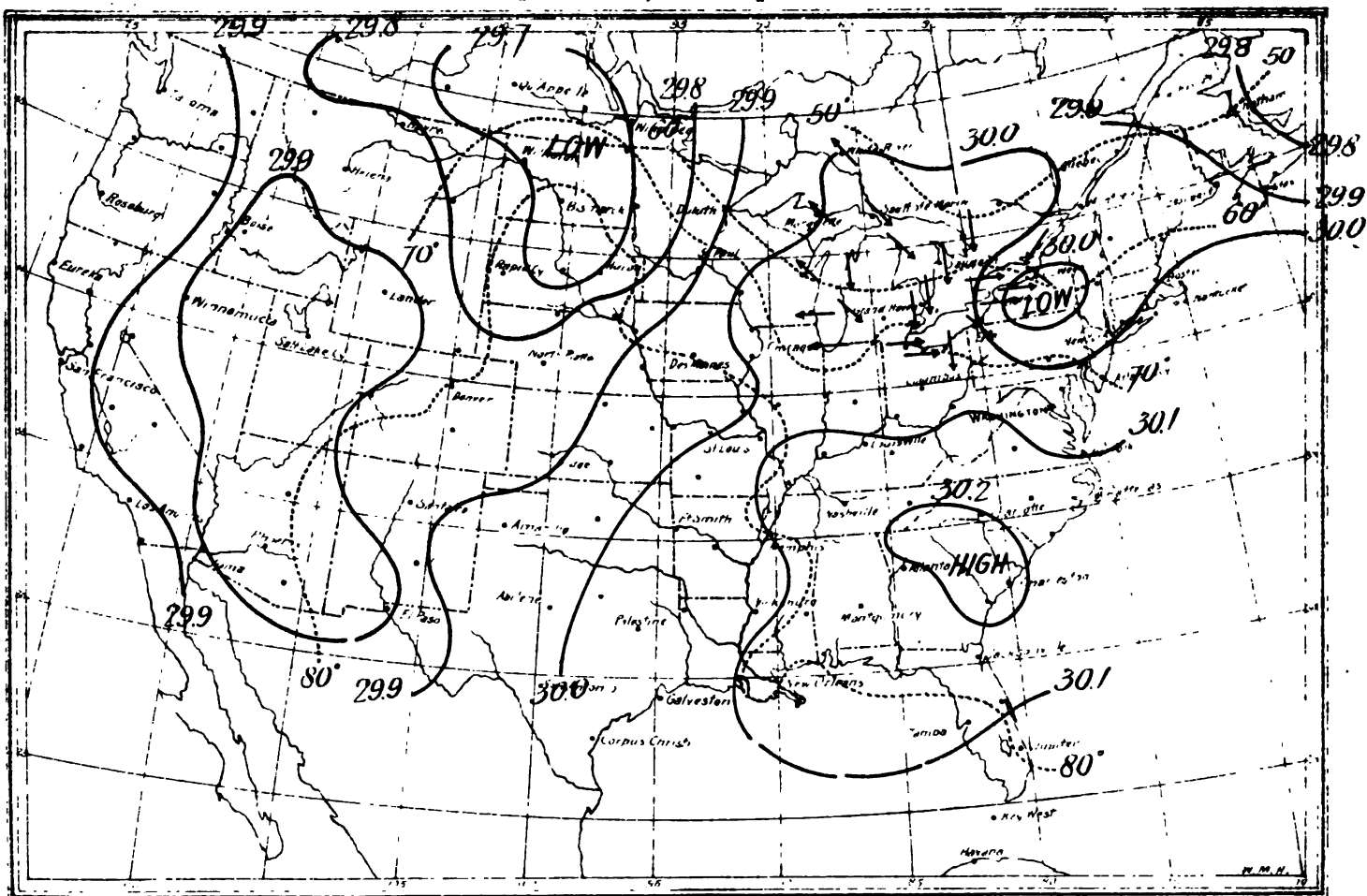


Chart DI.

September 27, 1891—8 a. m.

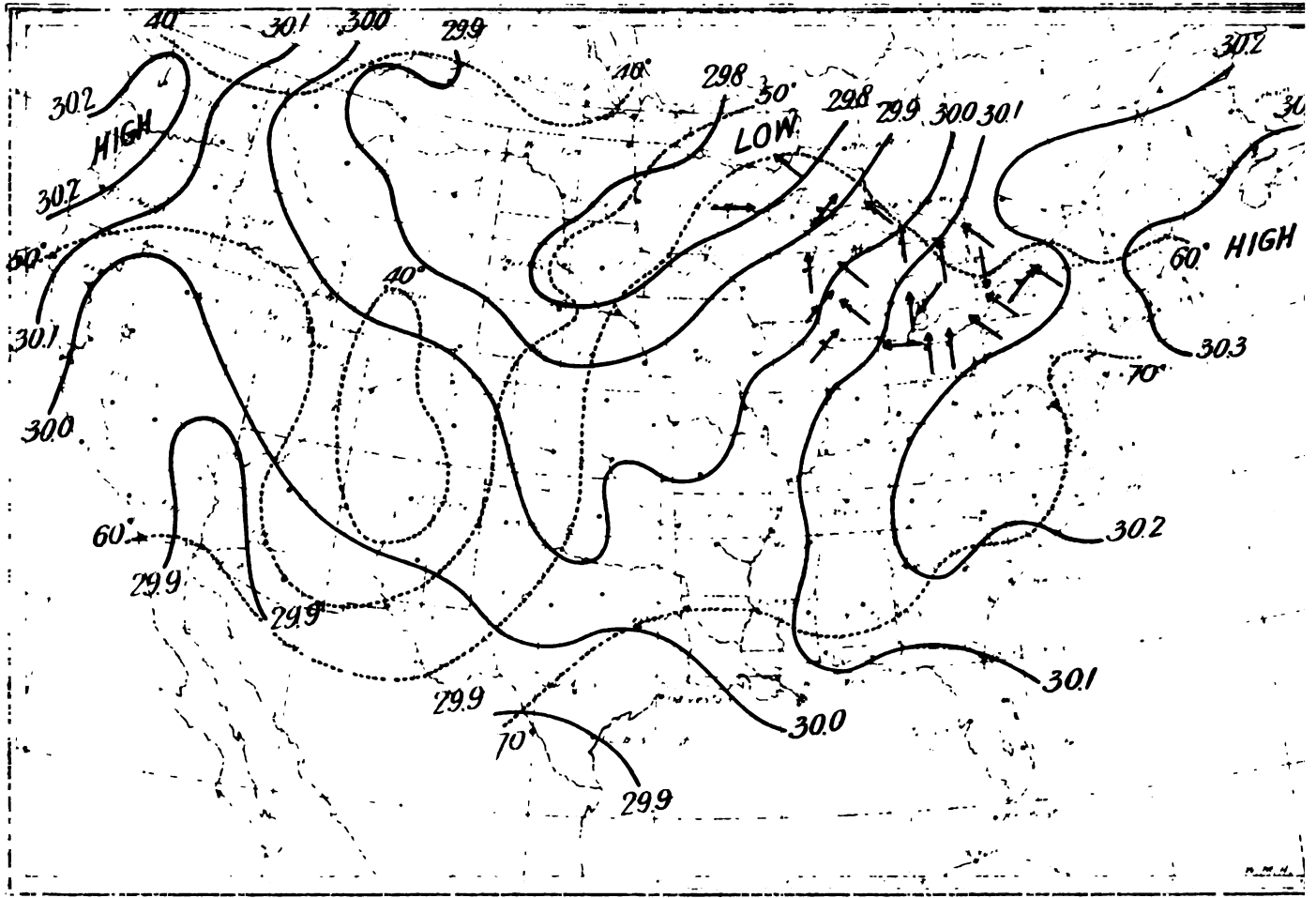


Chart DII.

September 27, 1891—8 p. m.

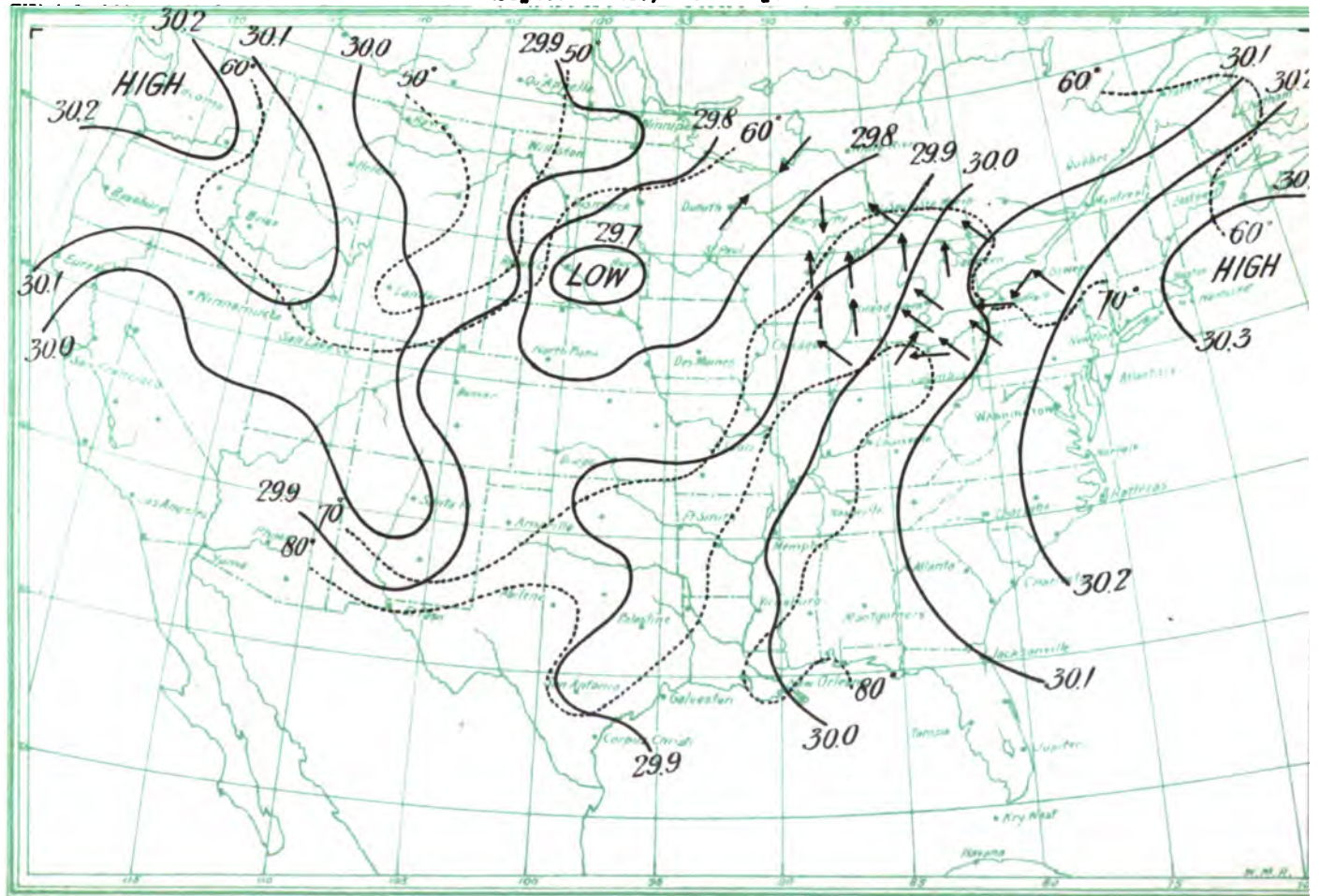


Chart DIII.

September 28, 1891—8 a. m.

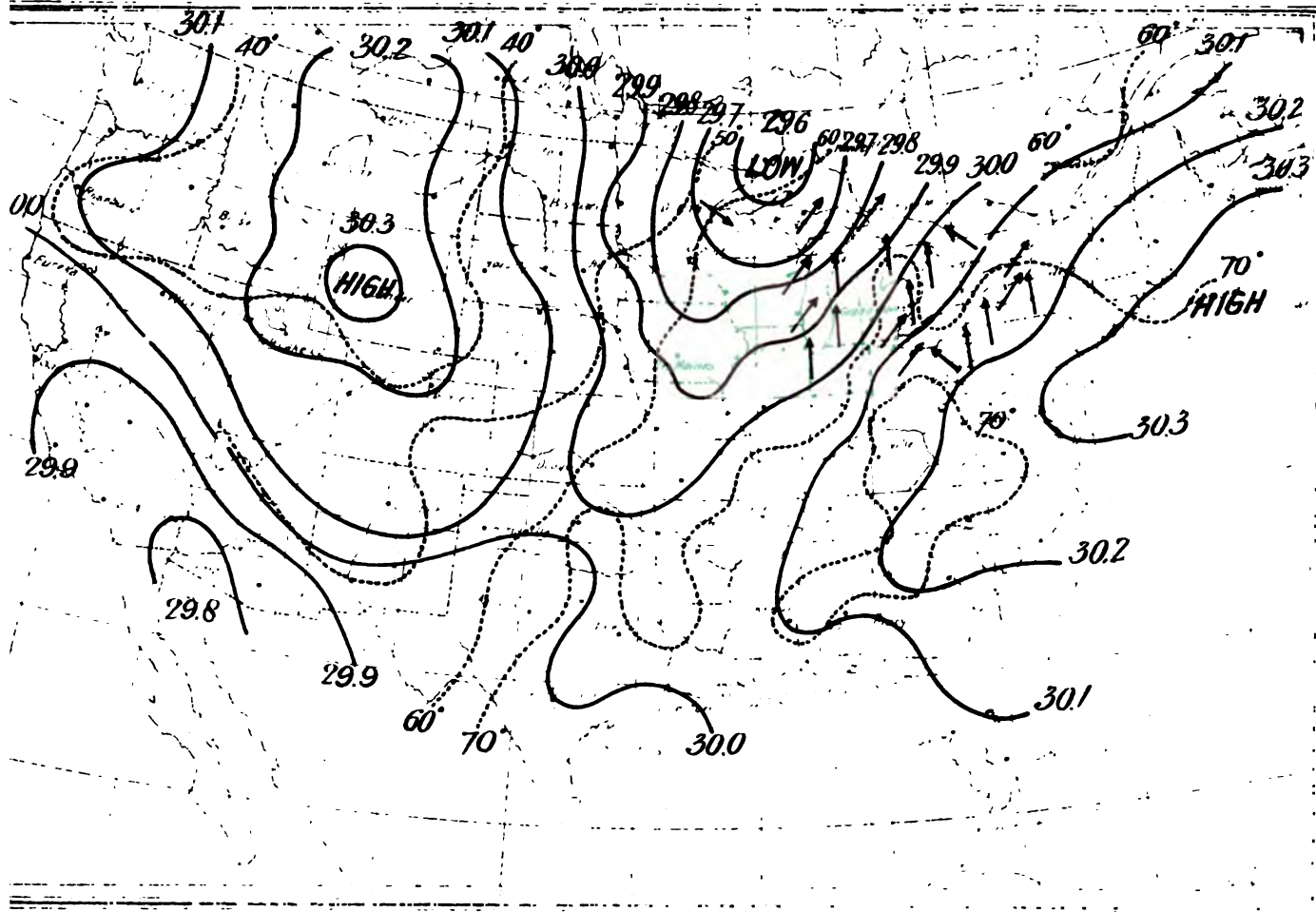


Chart DIV.

September 28, 1891—8 p. m.

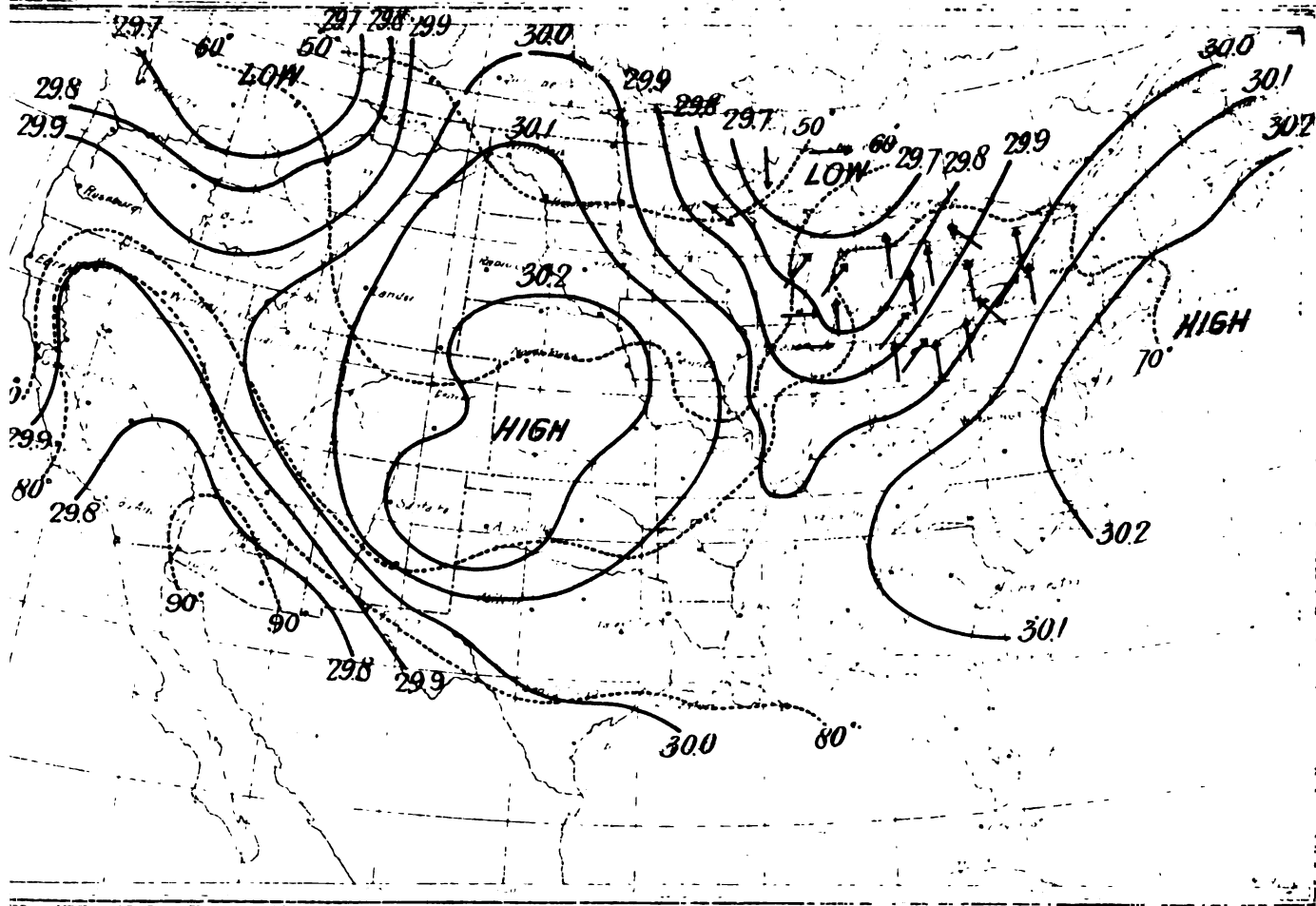


Chart DV.

September 13, 1892—8 a. m.

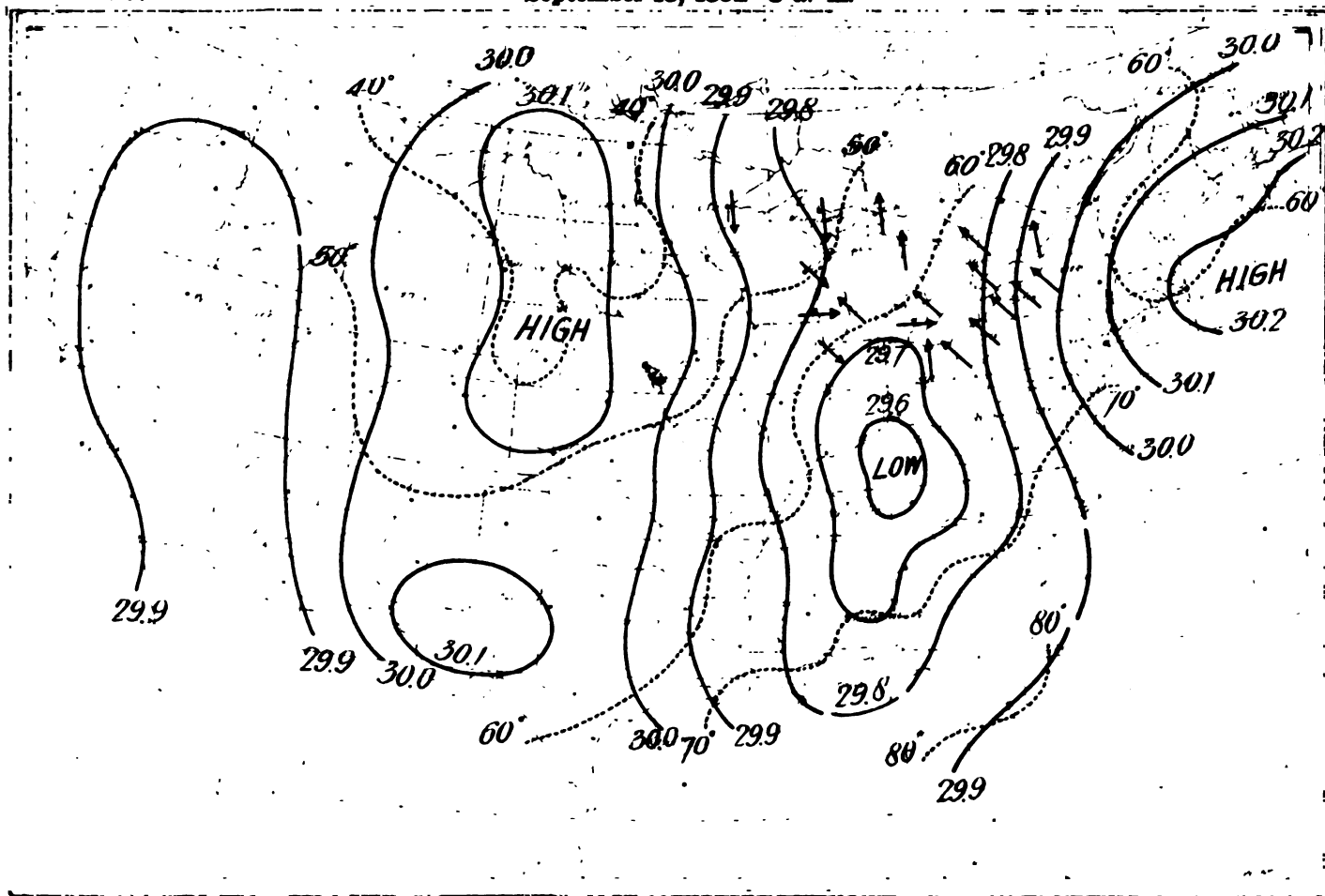


Chart DVI

September 13, 1892—8 p. m.

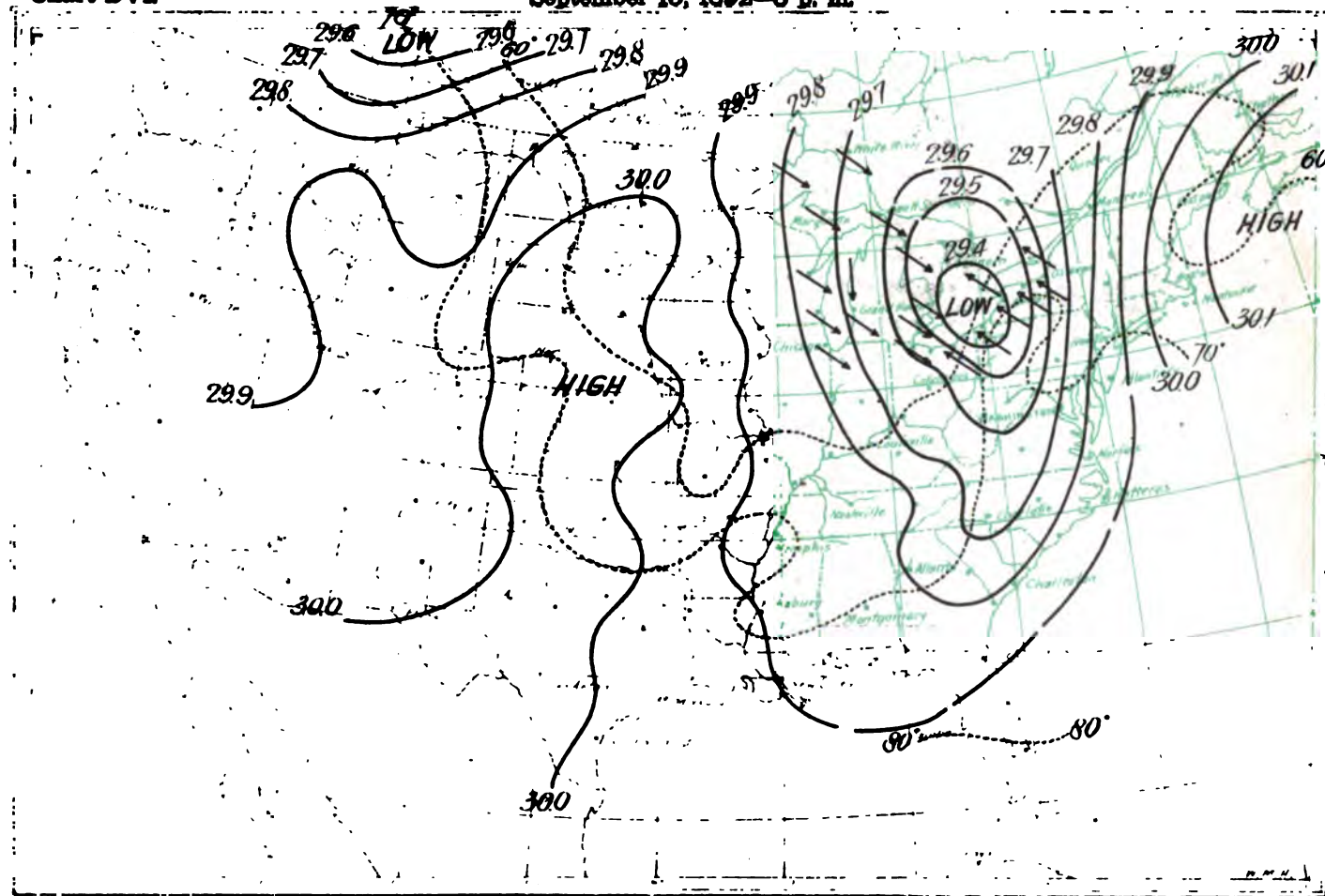


Chart DVII.

September 14, 1892—8 a. m.

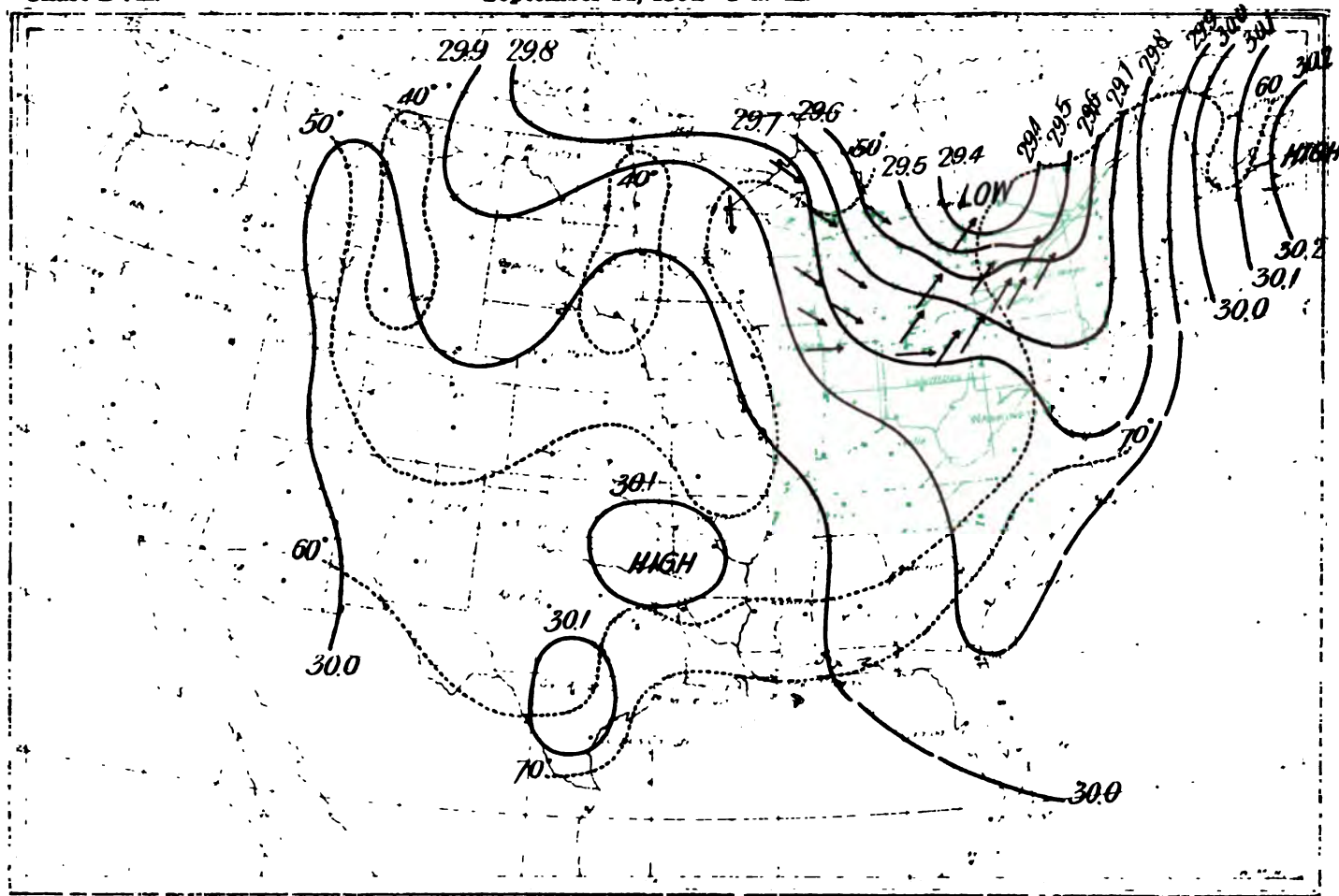


Chart DVIII.

September 14, 1892—8 p. m.

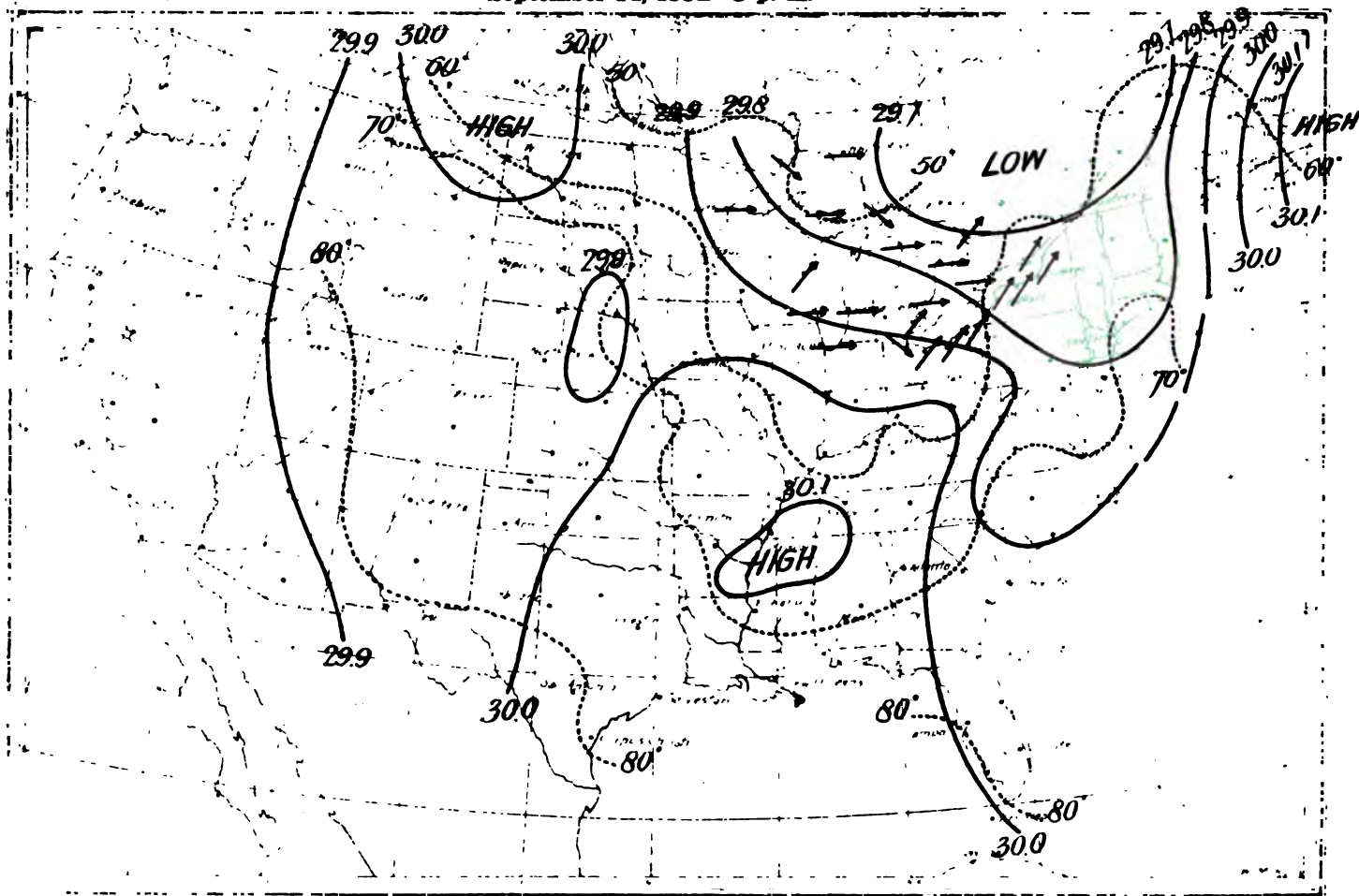


Chart DIX.

September 21, 1894—8 a. m.

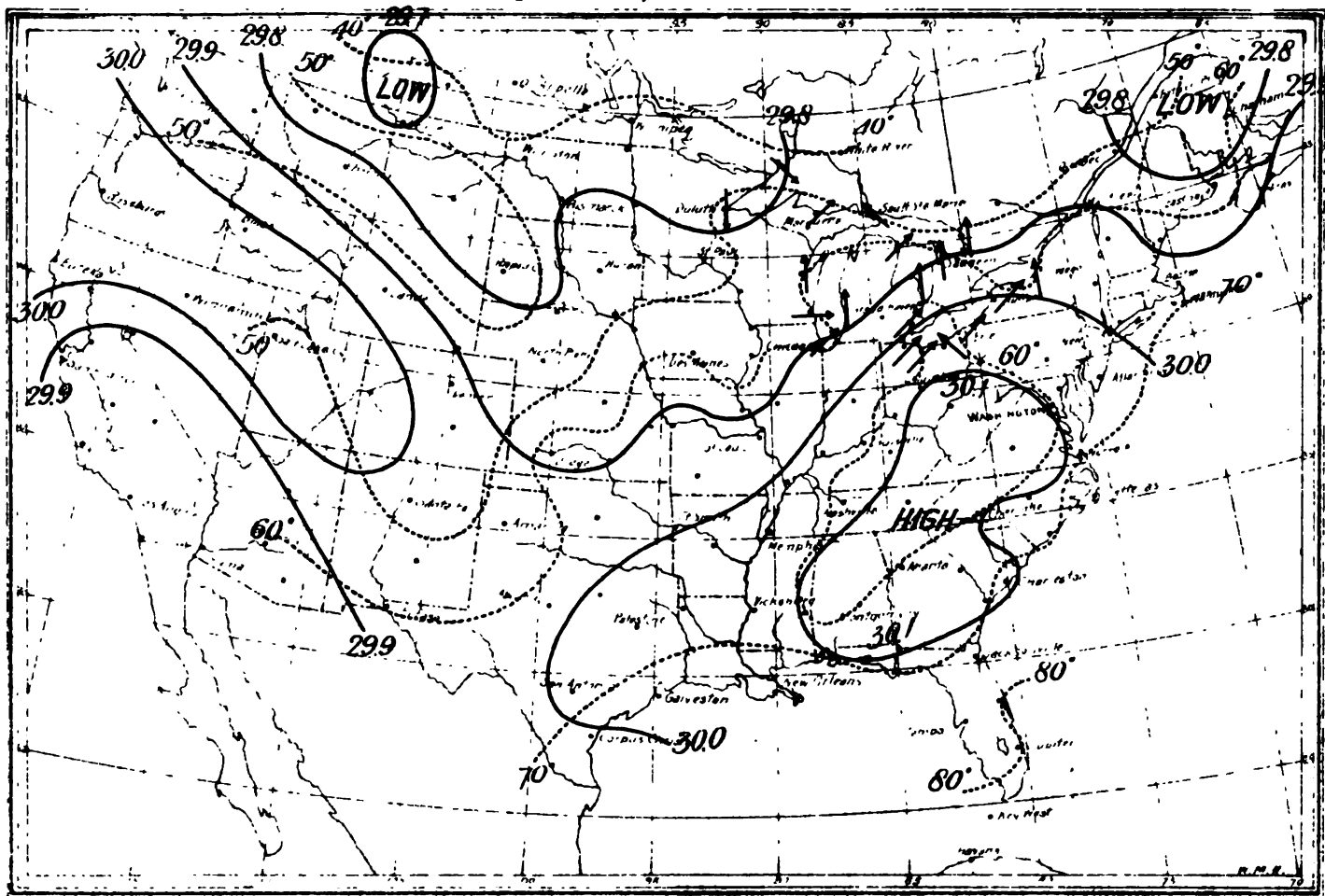


Chart DX.

September 21, 1894—8 p. m.

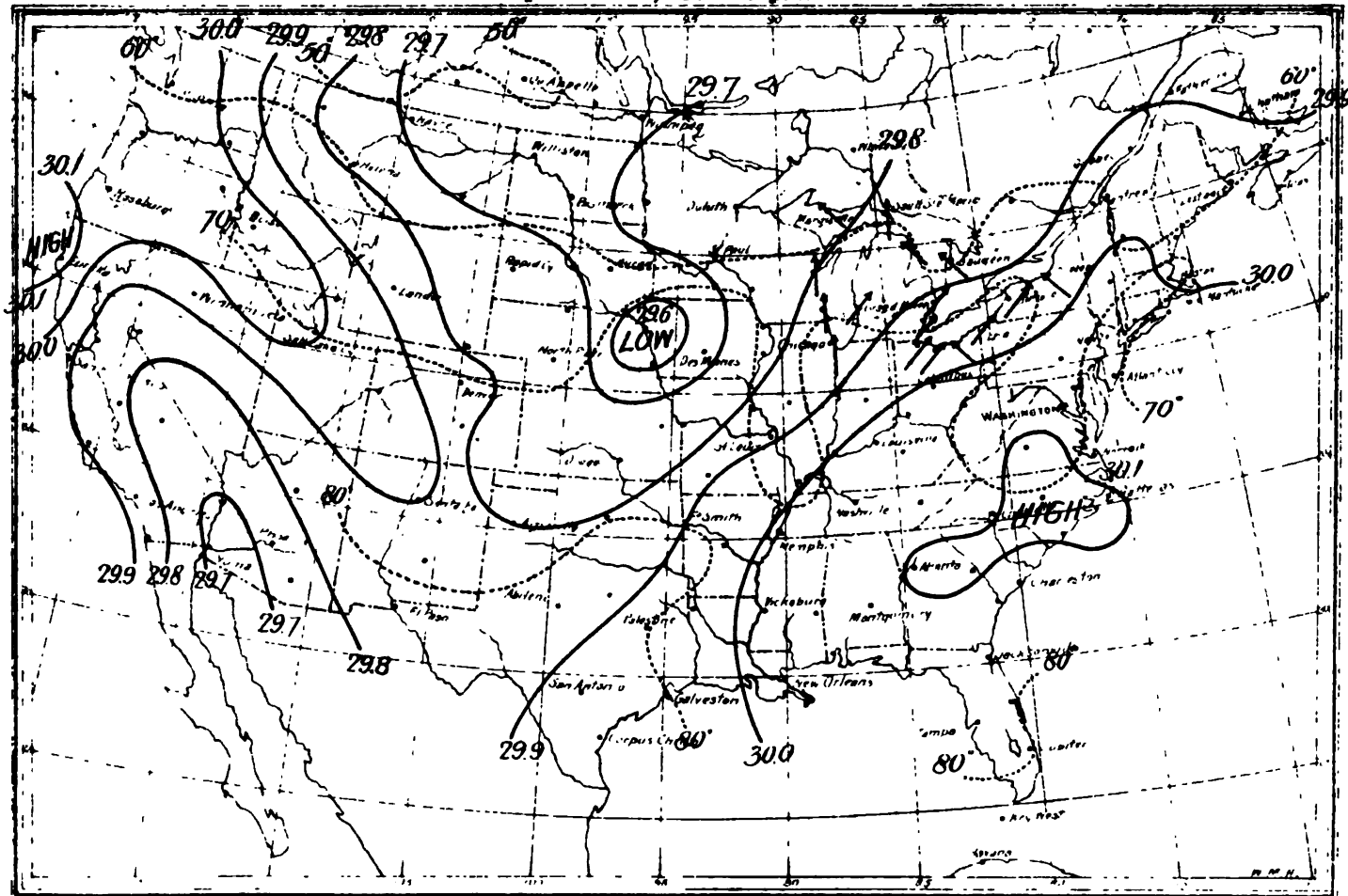


Chart DXI.

September 22, 1894—8 a. m.

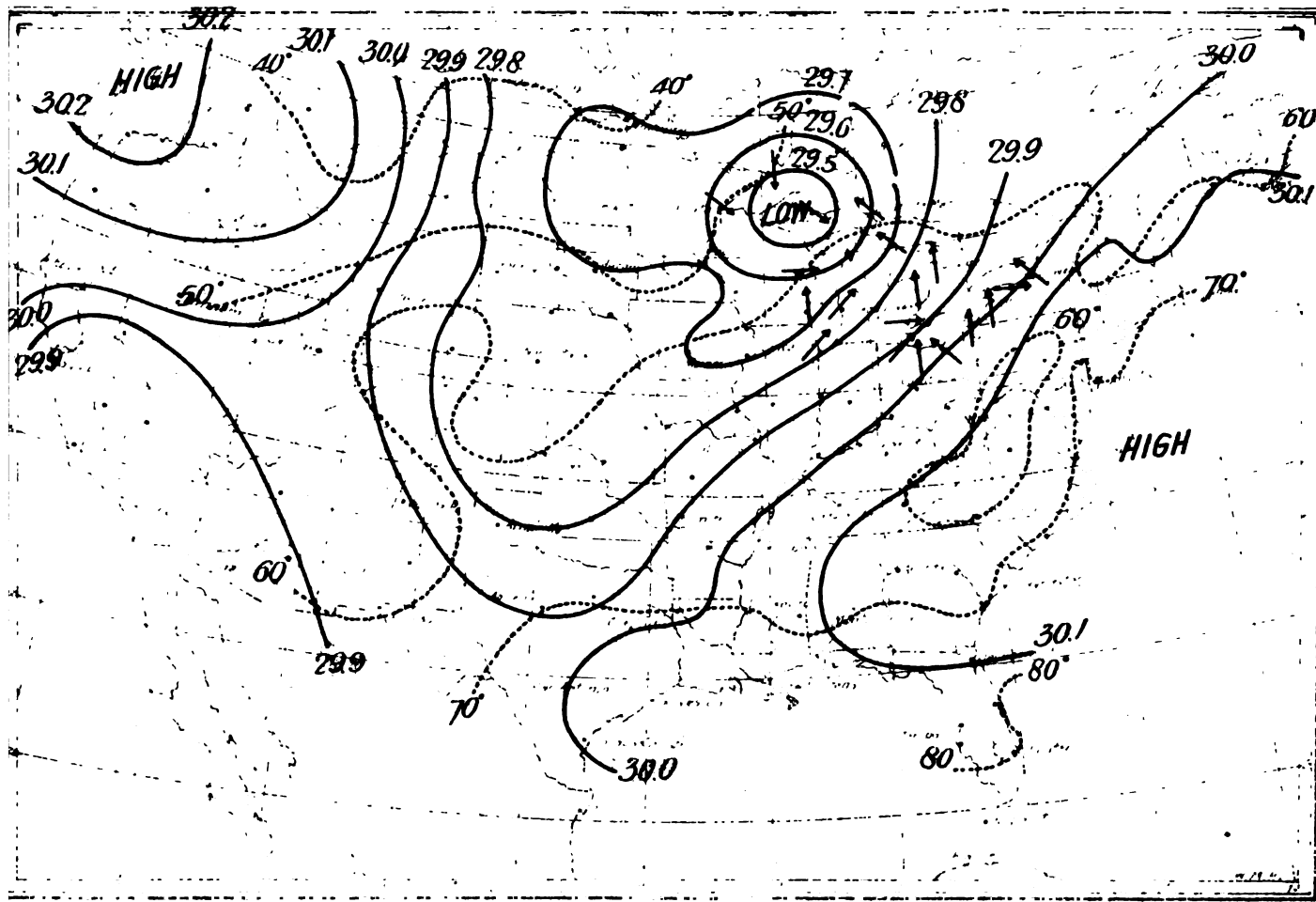


Chart DXII.

September 22, 1894—8 p. m.

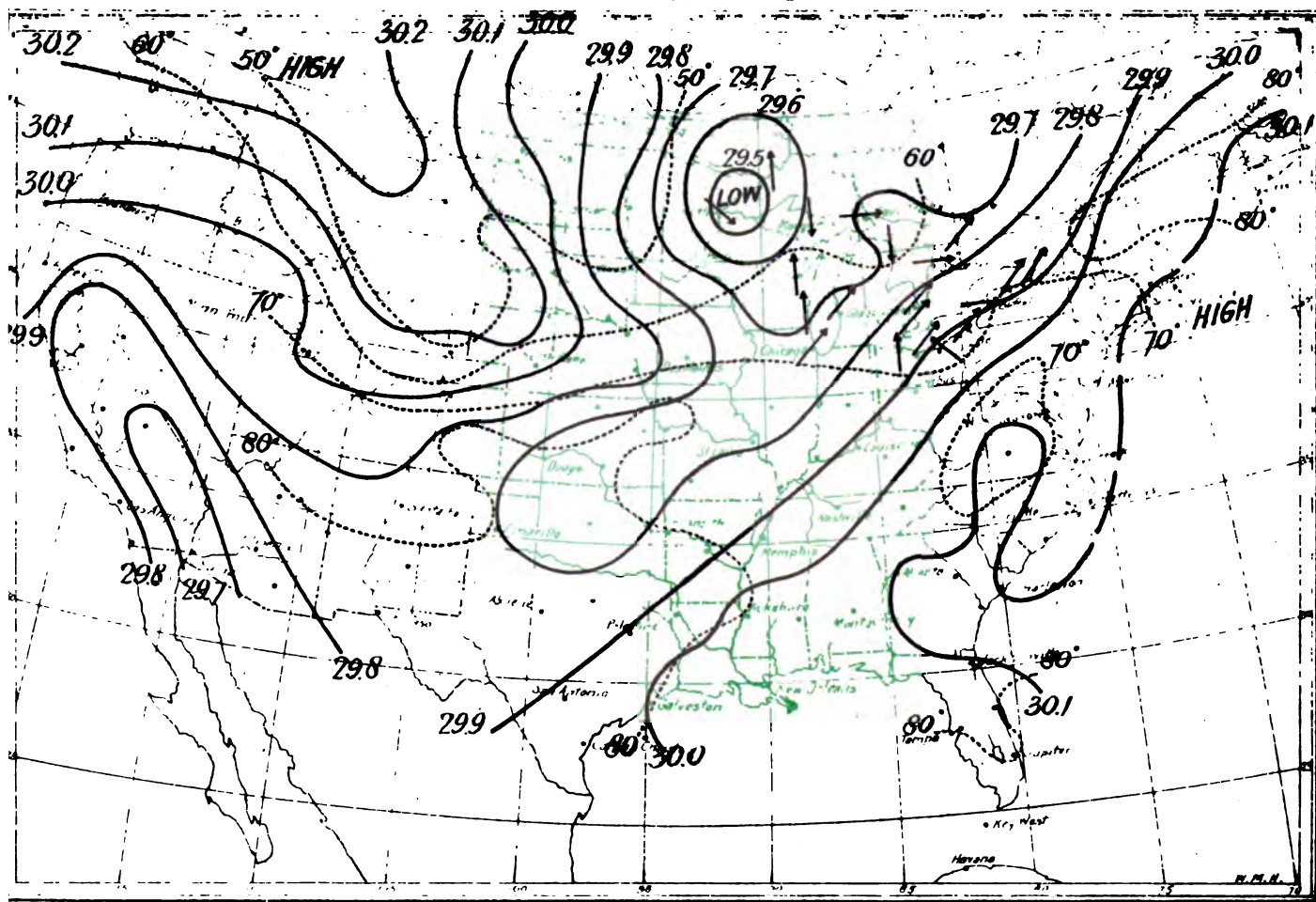


Chart DXIII.

September 27, 1895—8 a. m.

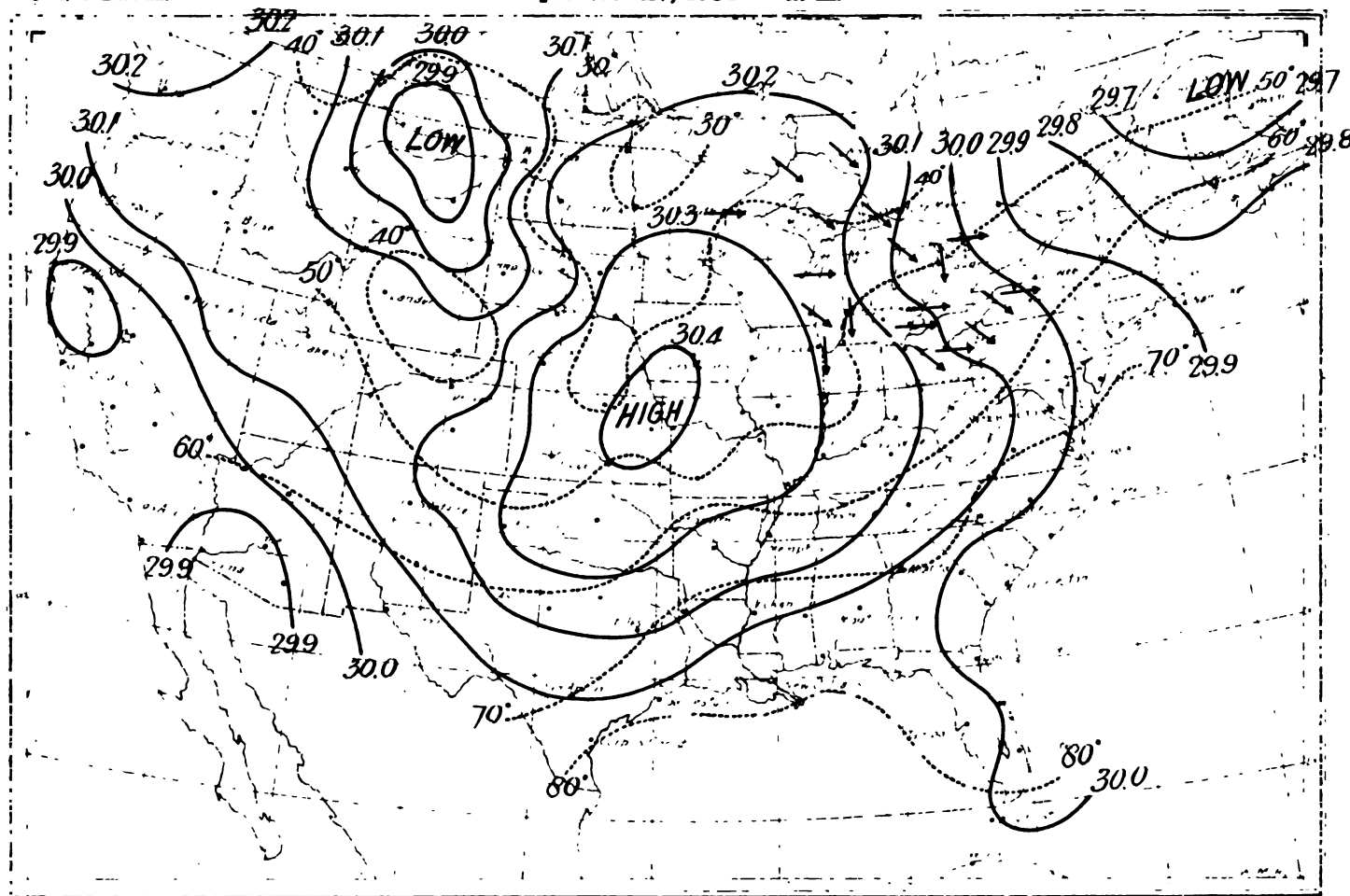


Chart DXIV.

September 27, 1895—8 p. m.

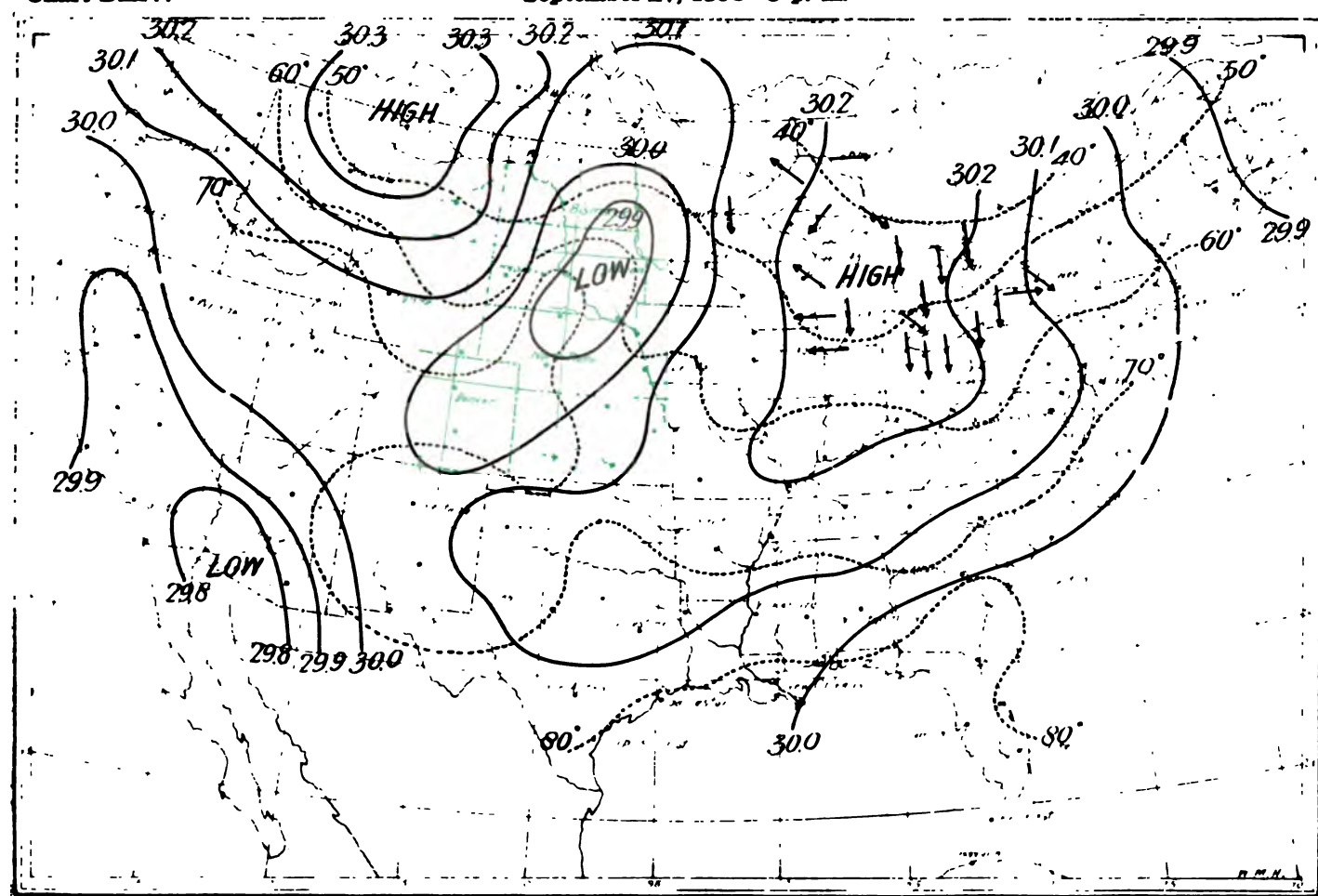


Chart DXV.

September 28, 1895—8 a. m.

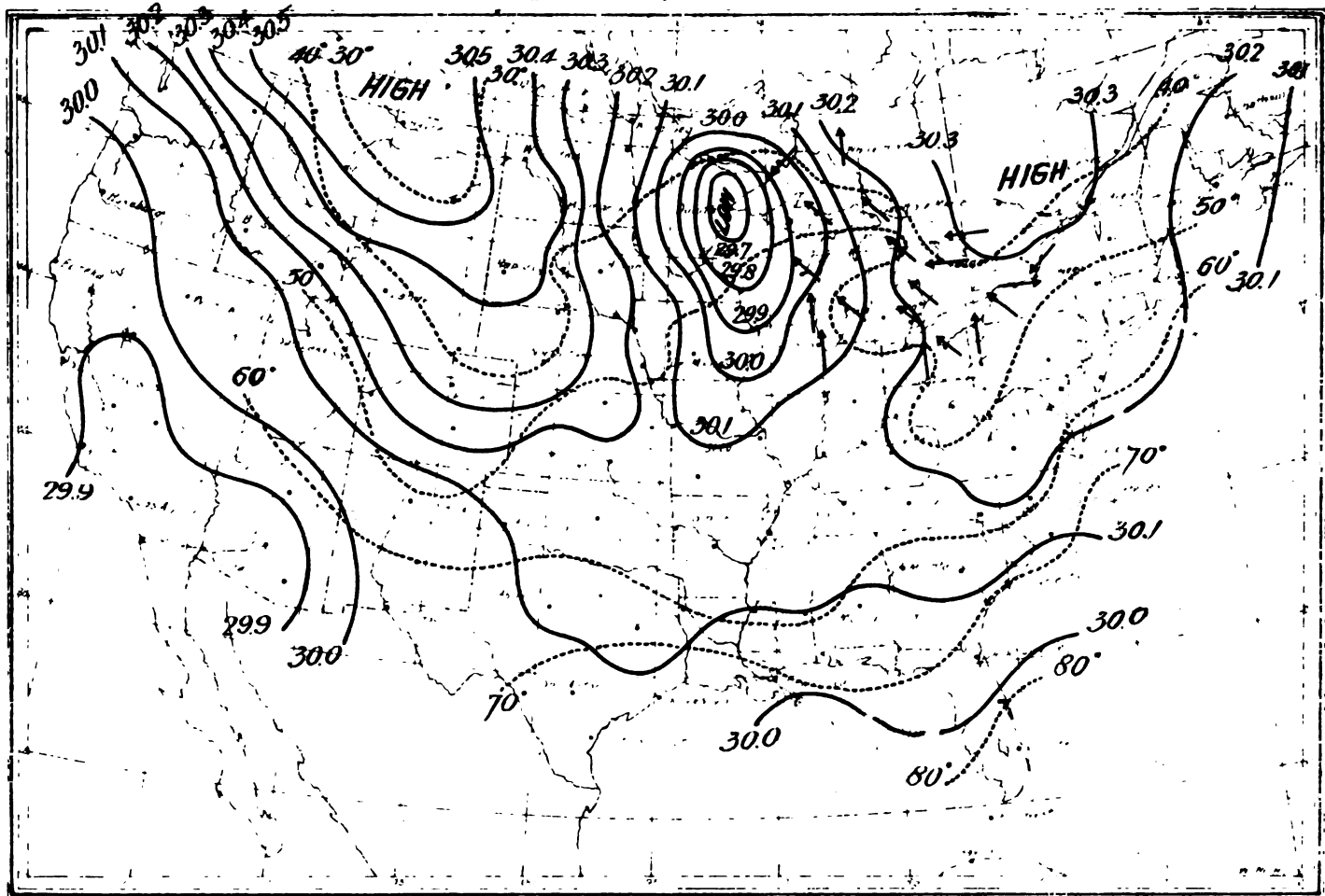


Chart DXVI.

September 28, 1895—8 p. m.

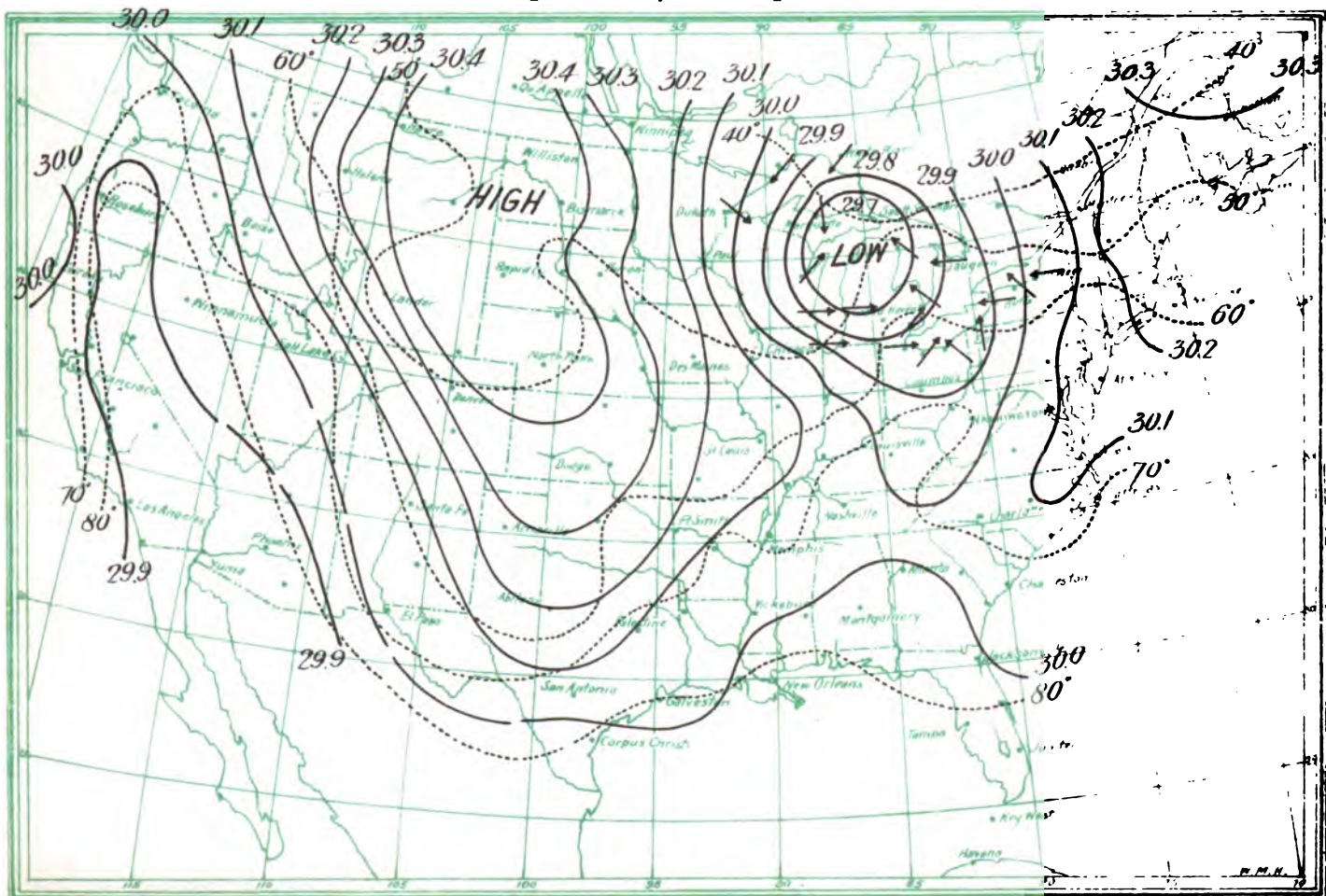


Chart DXVII.

September 29, 1896—8 a. m.

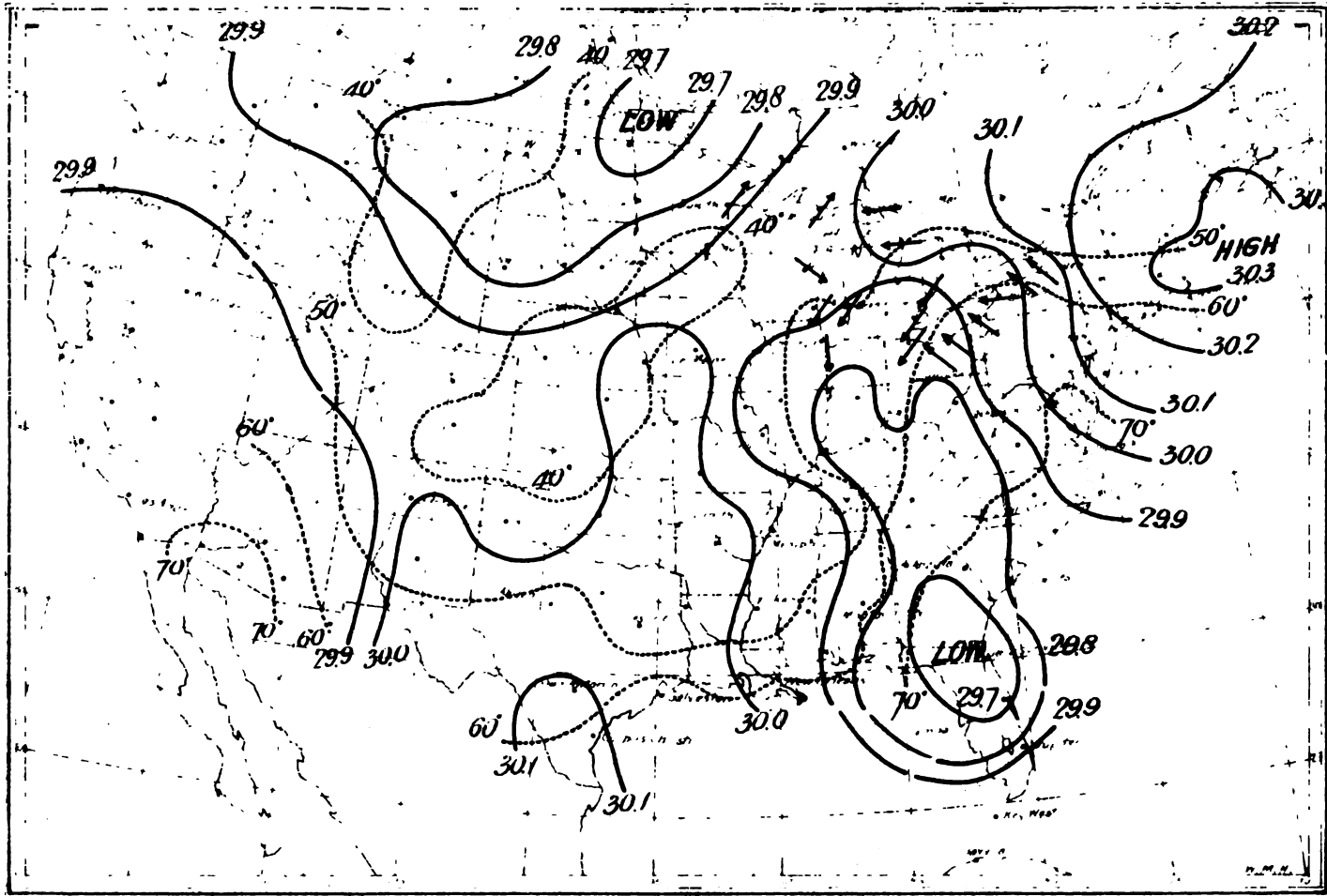


Chart DXVIII.

September 29, 1896—8 p. m.

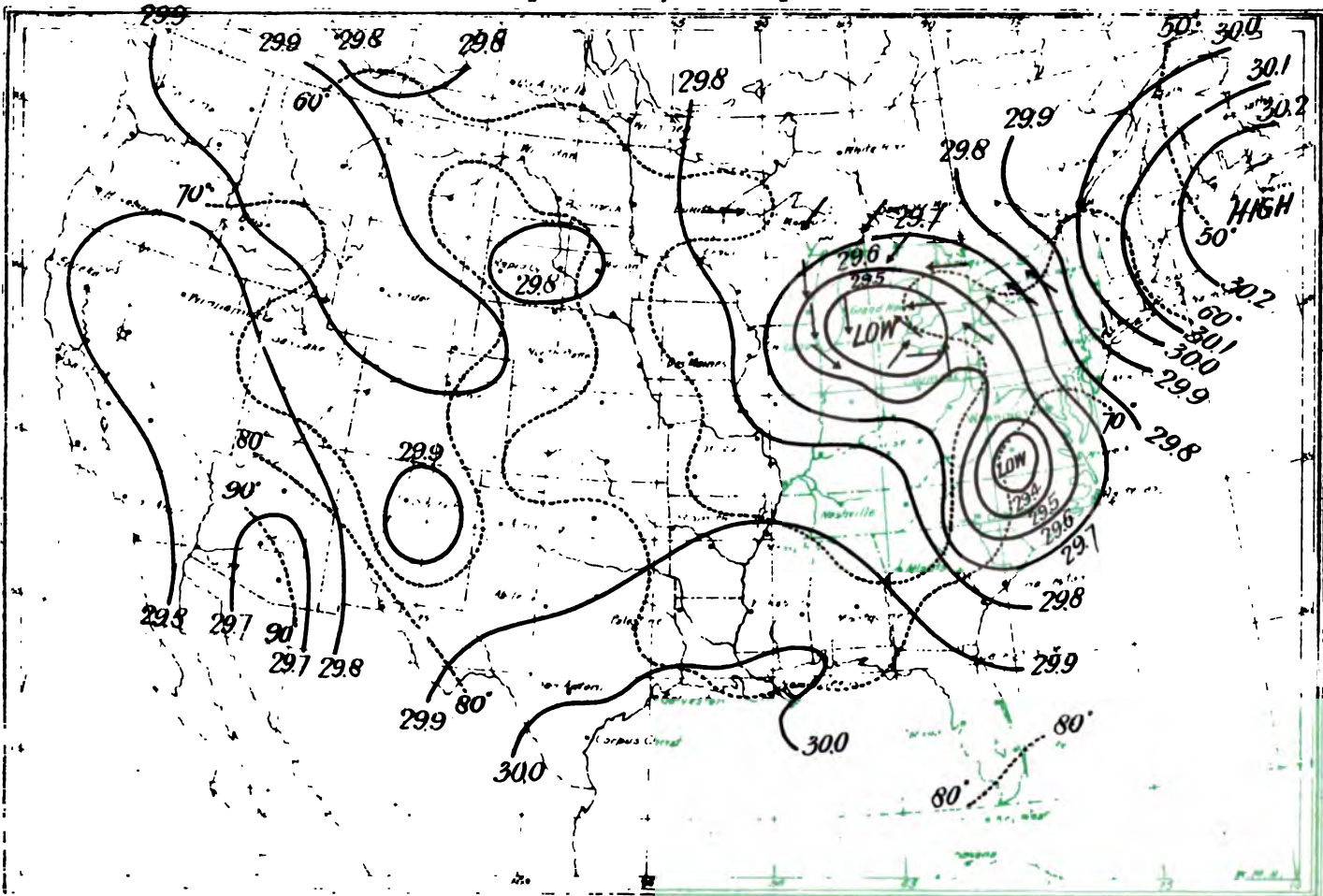


Chart DXIX.

September 30, 1896—8 a. m.

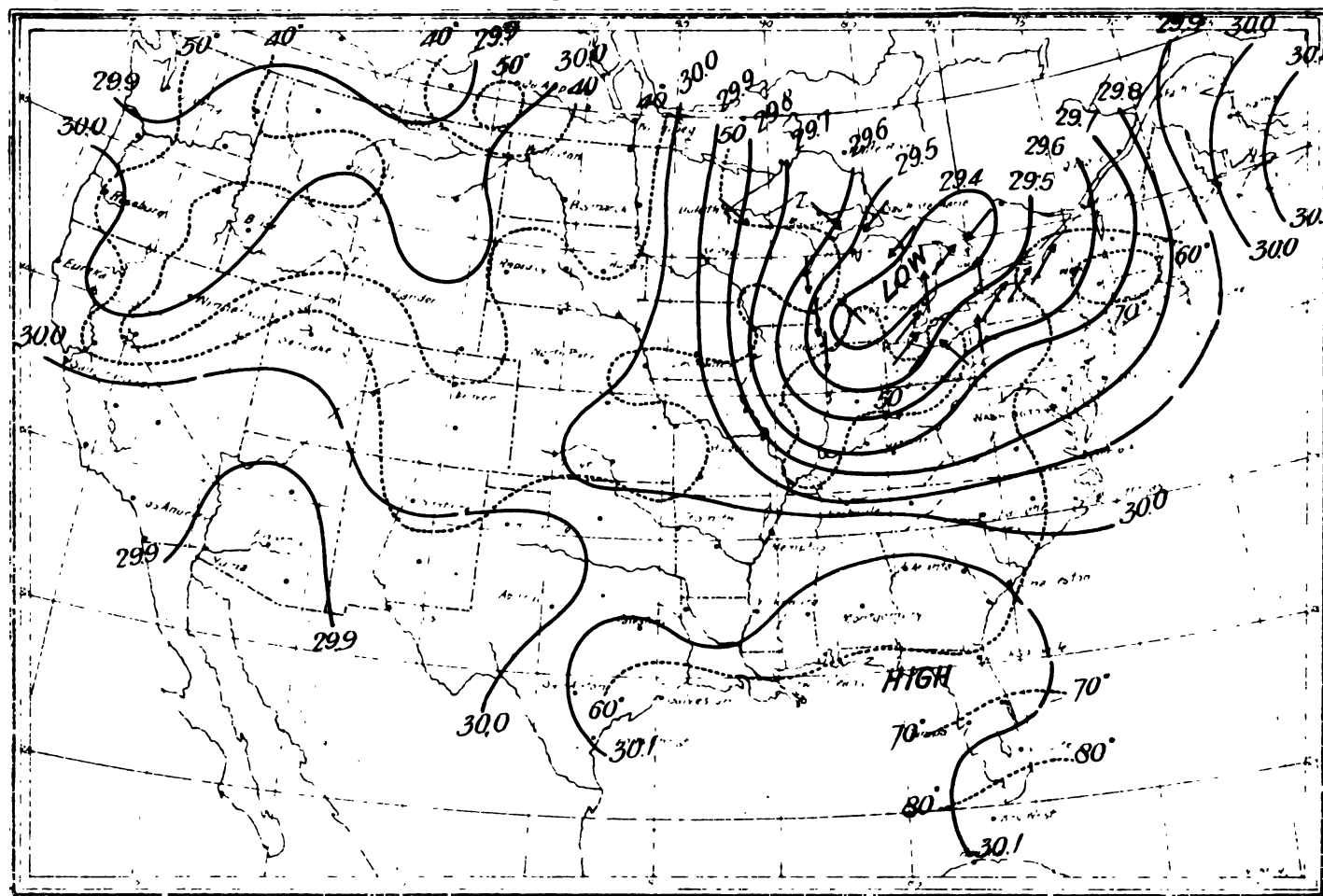


Chart DXX.

September 30, 1896—8 p. m.

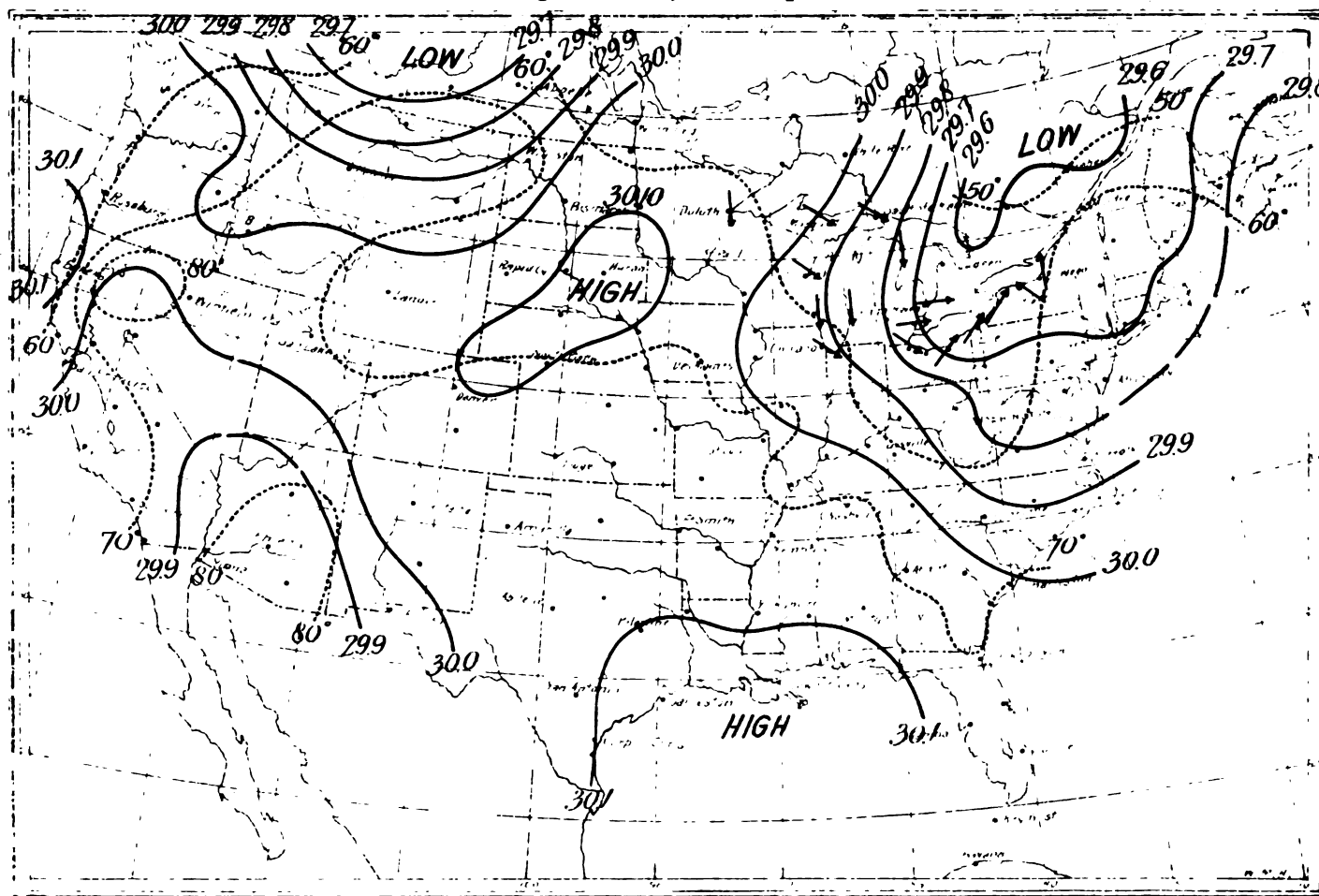


Chart DXXI.

September 23, 1899—8 a. m.

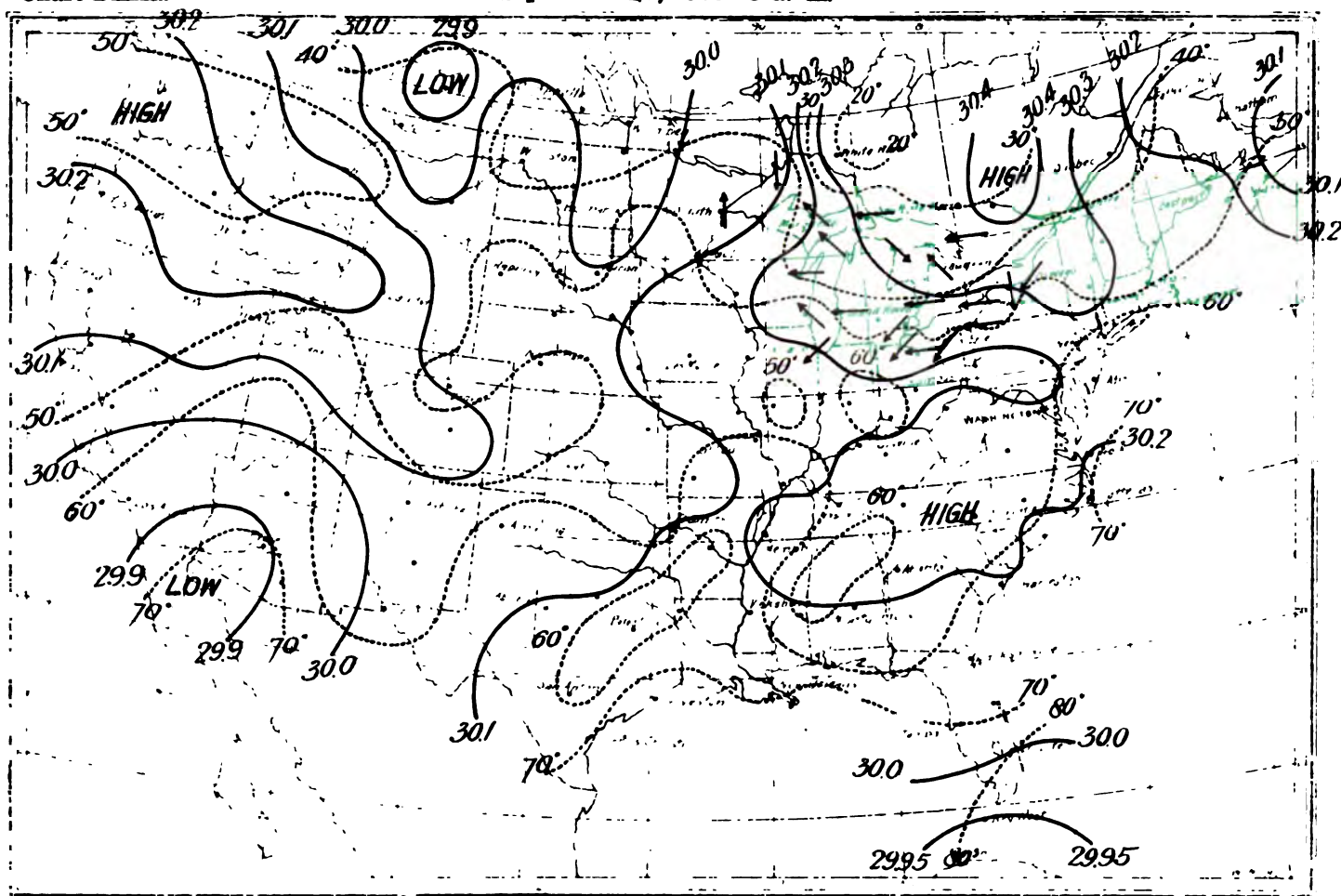


Chart DXXII.

September 23, 1899—8 p. m.

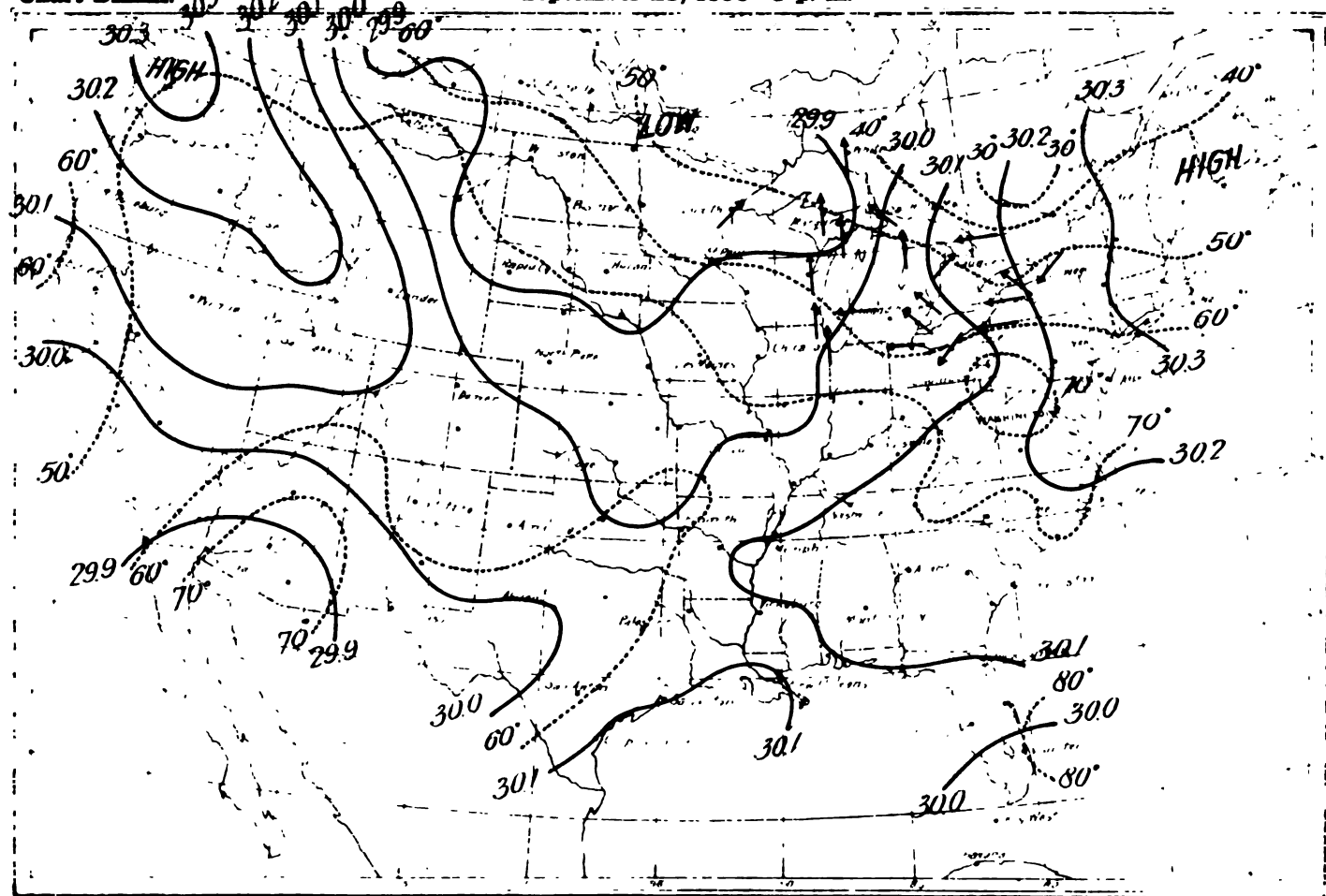


Chart DXXIII.

September 24, 1899—8 a. m.

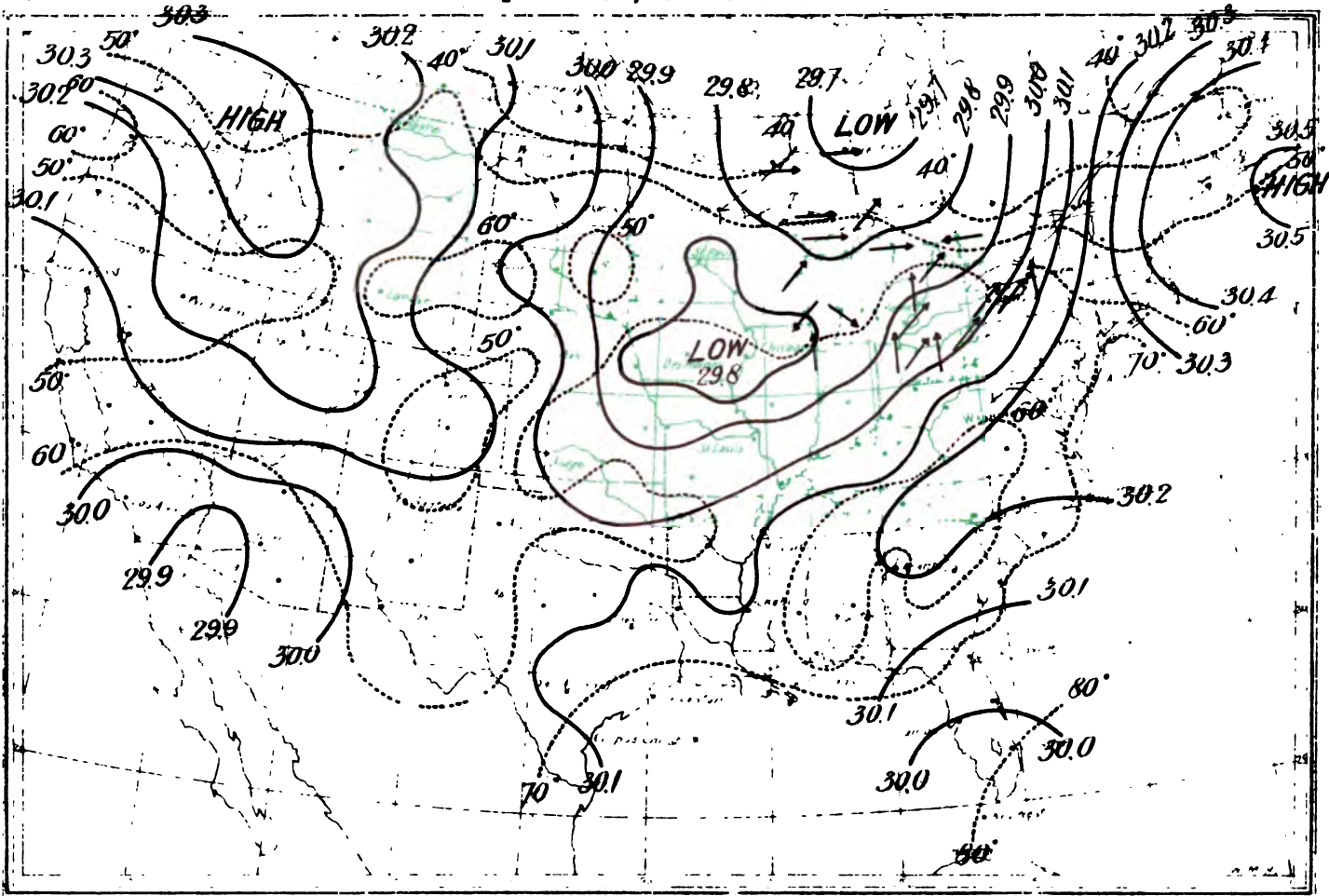


Chart DXXIV.

September 24, 1899—8 p. m.

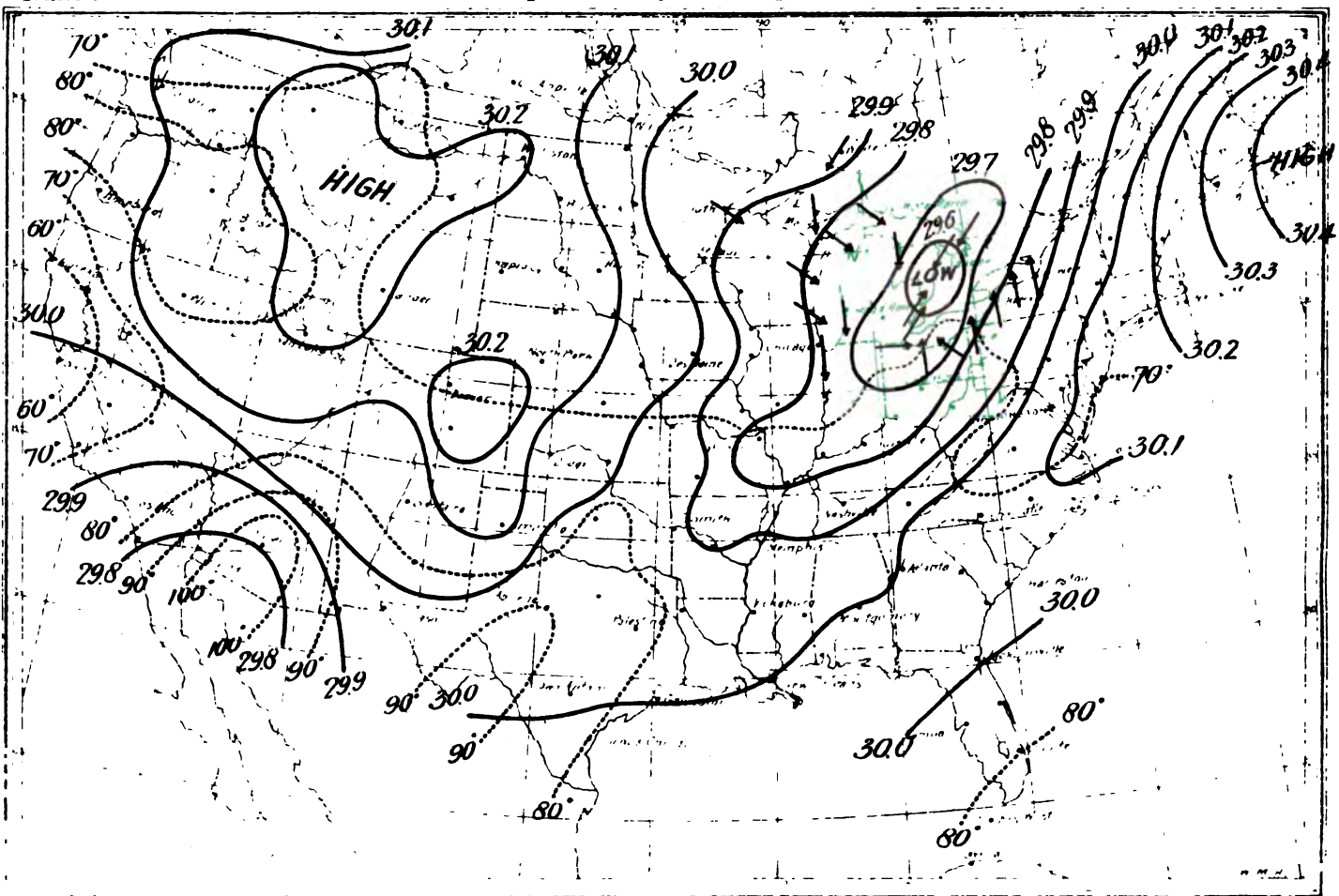


Chart DXXV.

September 27, 1899—8 a. m.

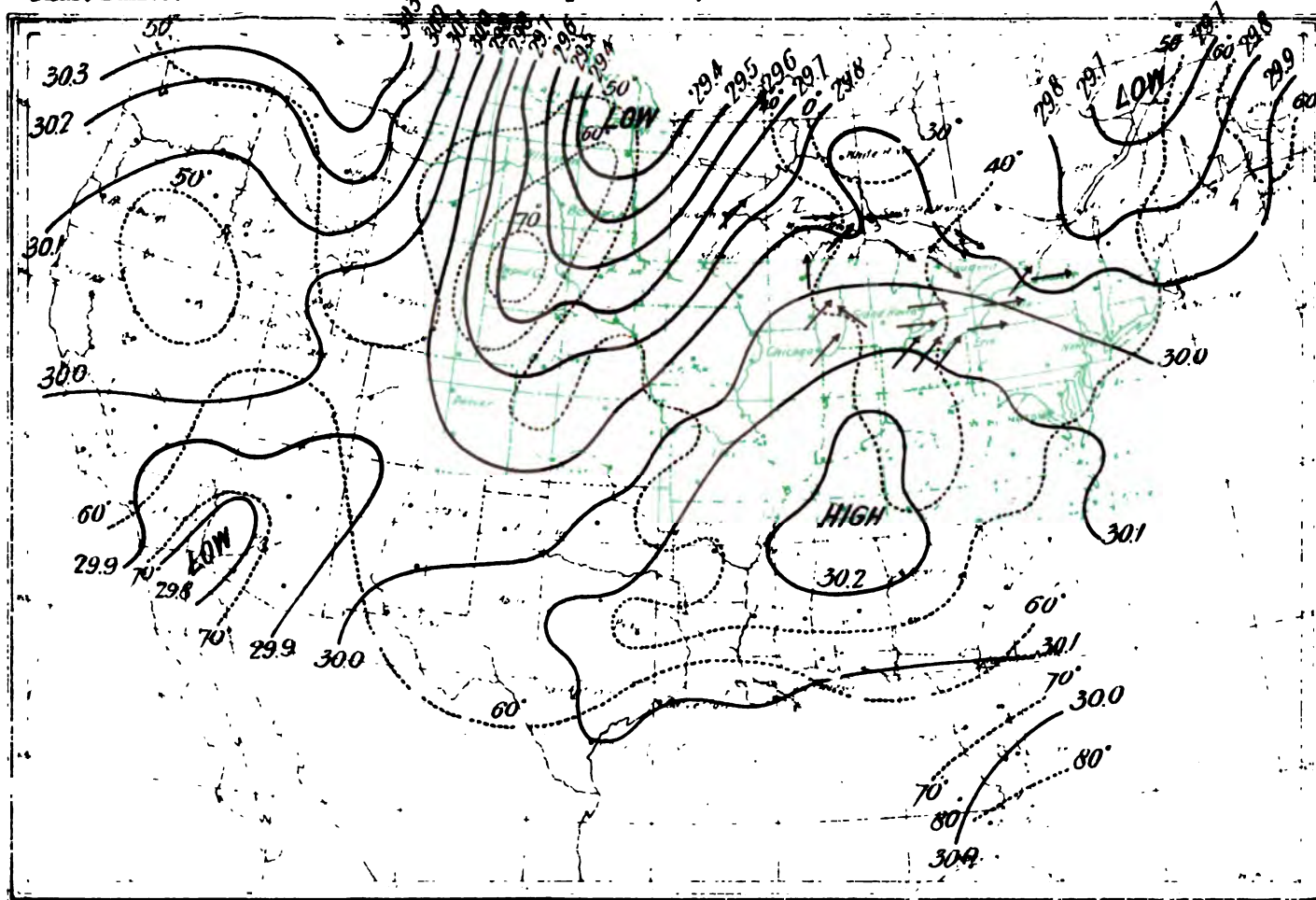


Chart DXXVII.

September 28, 1899—8 a. m.

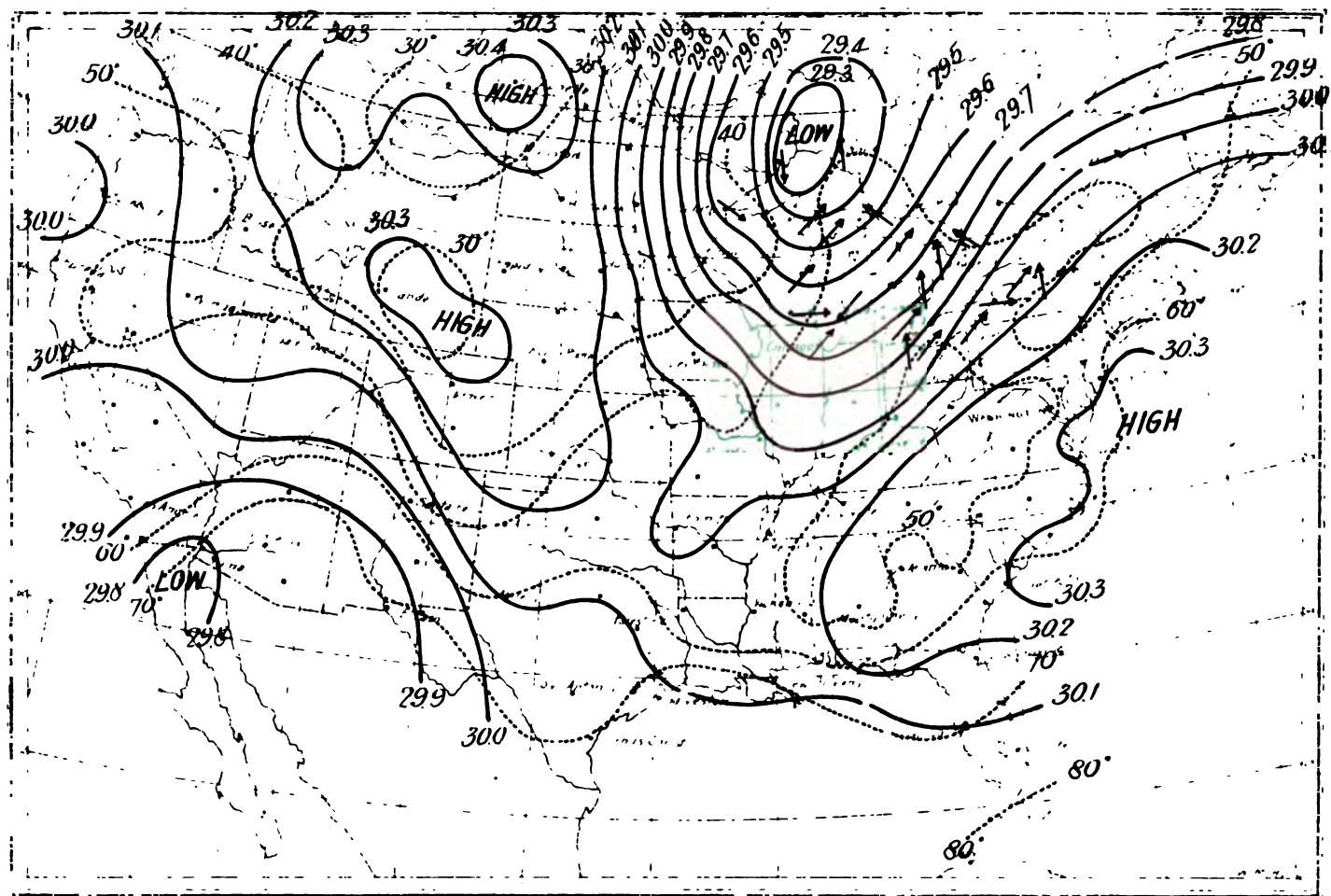


Chart DXXVIII.

September 28, 1899—8 p. m.

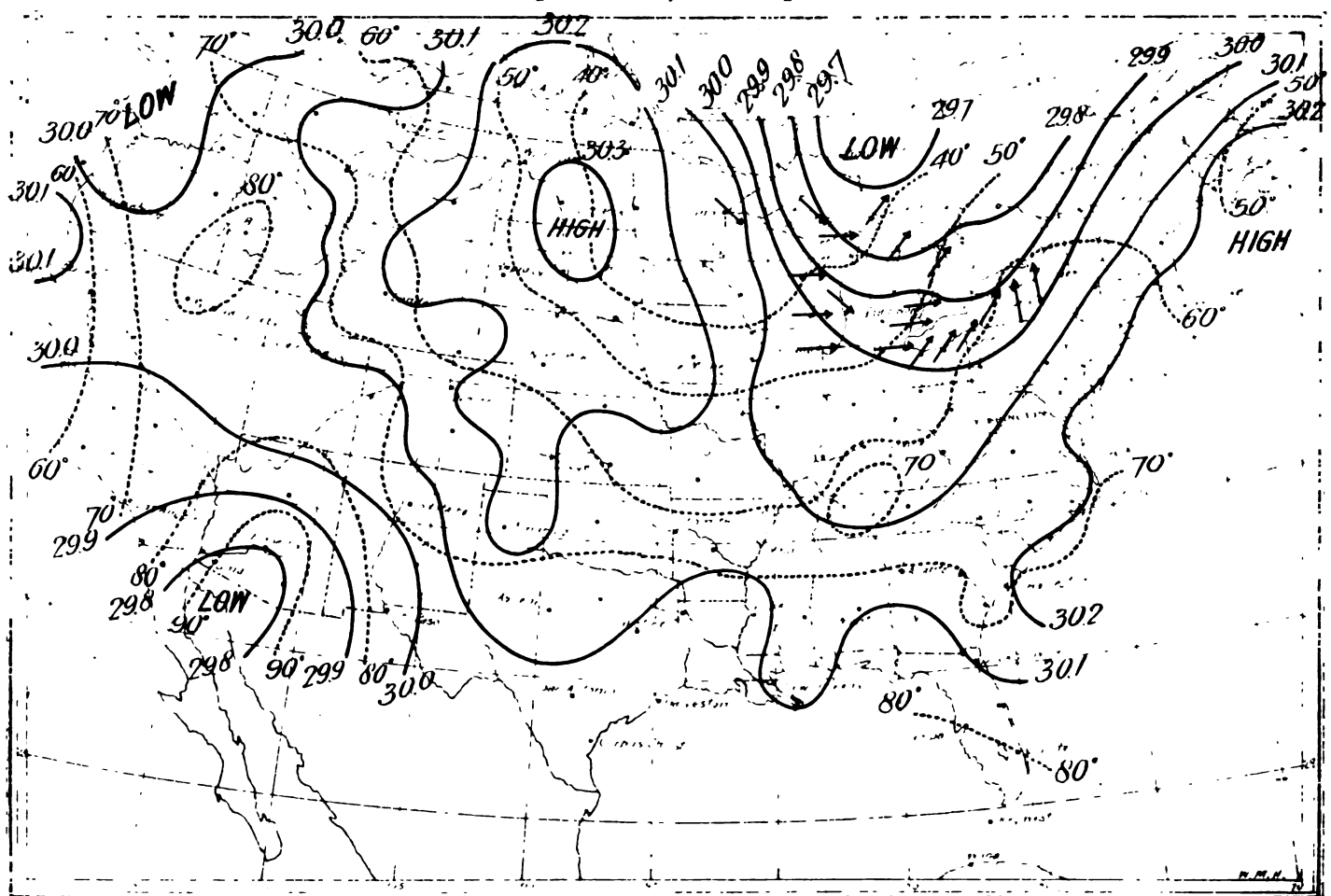


Chart DXXXIX

September 10, 1900—8 a. m.

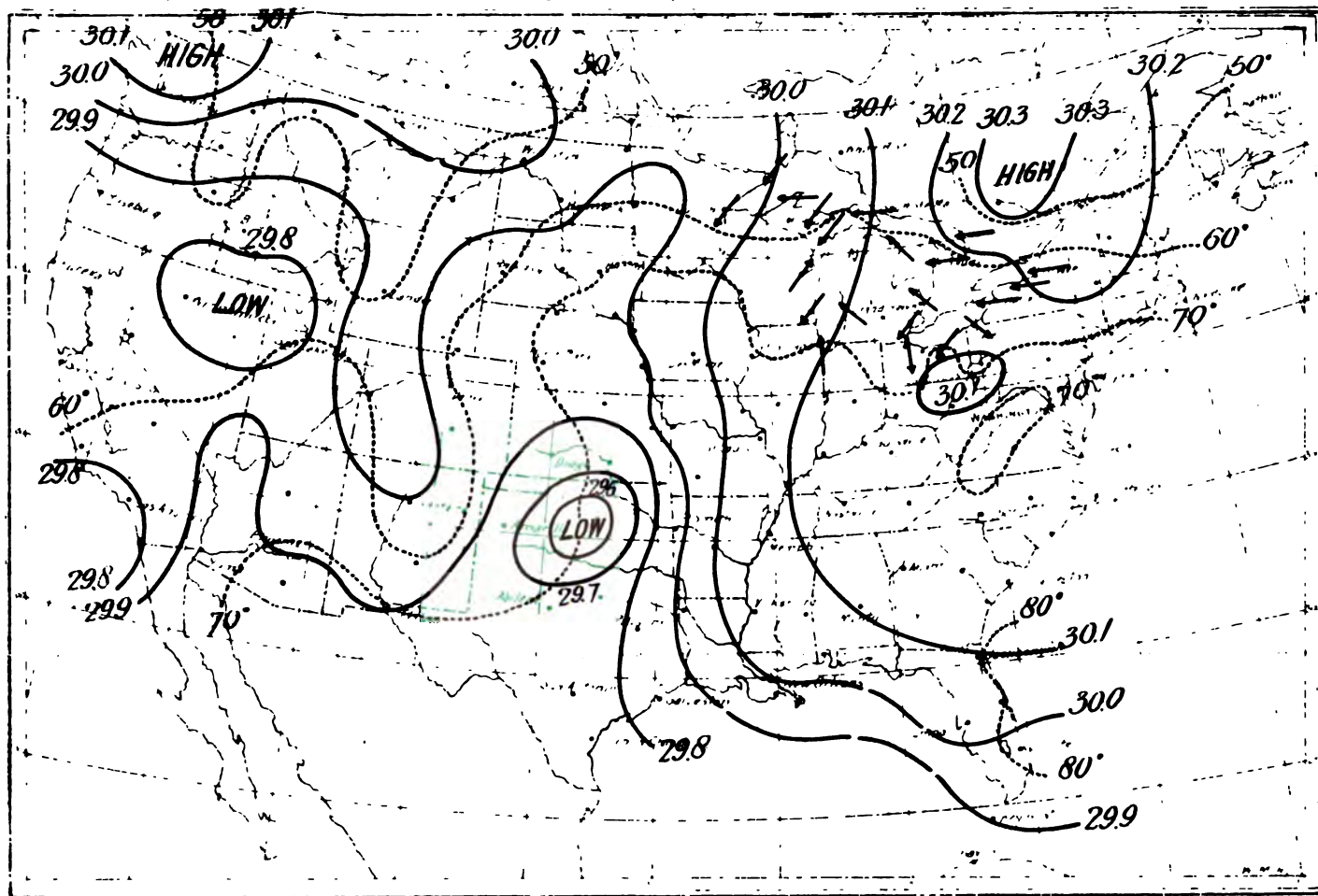


Chart DXXX

September 10, 1900—8 p. m.

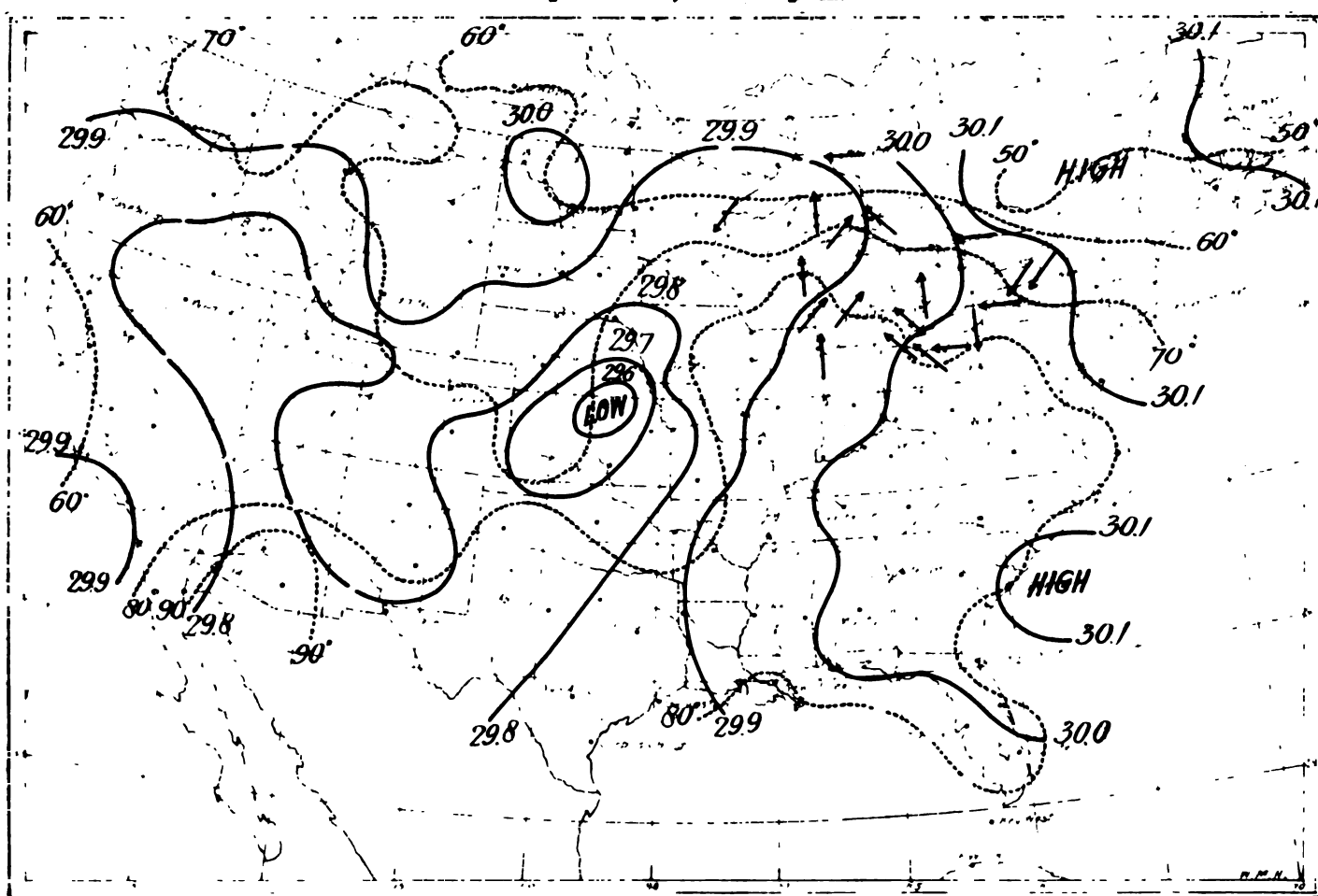


Chart DXXXI.

September 11, 1900—8 a. m.

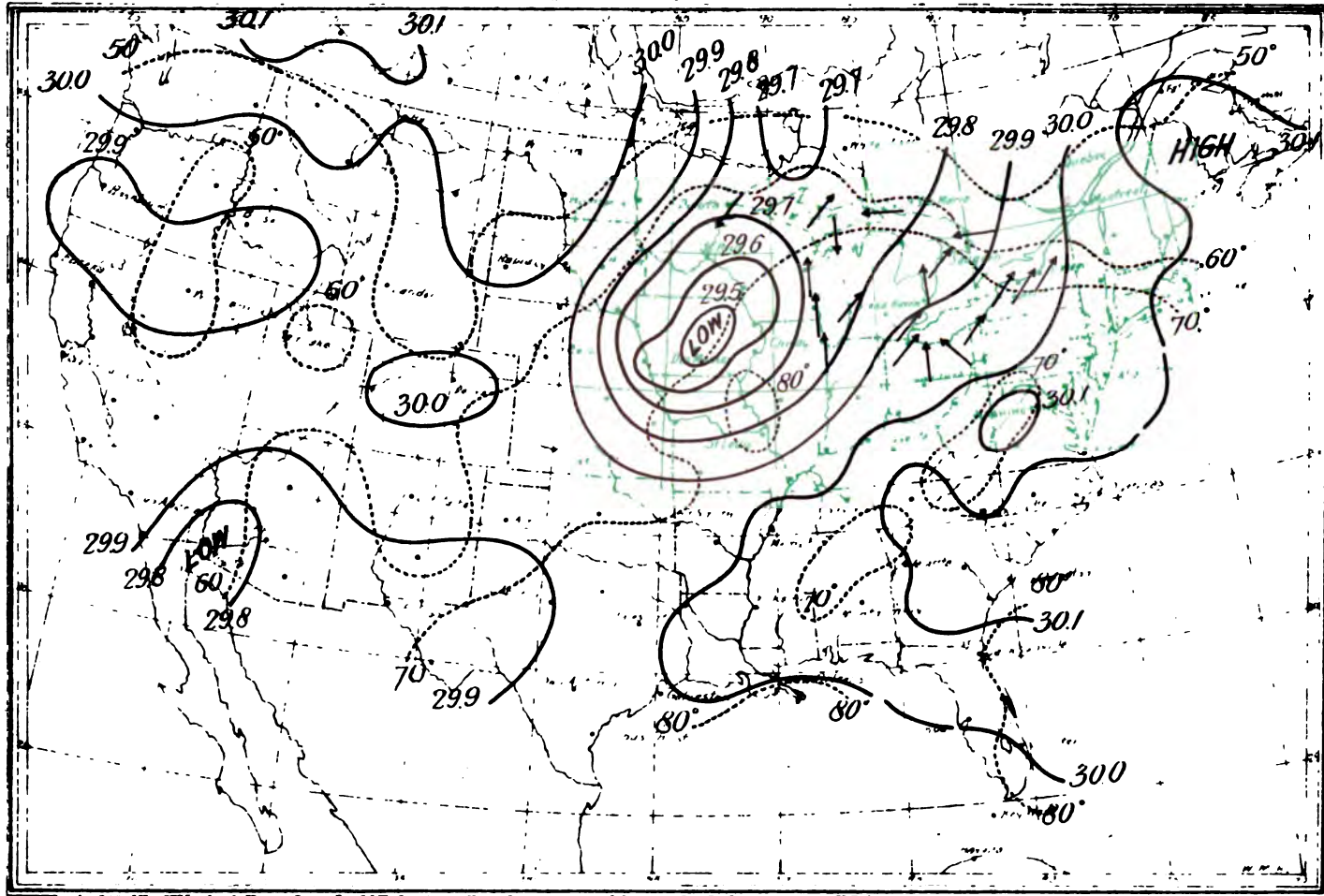


Chart DXXXII.

September 11, 1900—8 p. m.

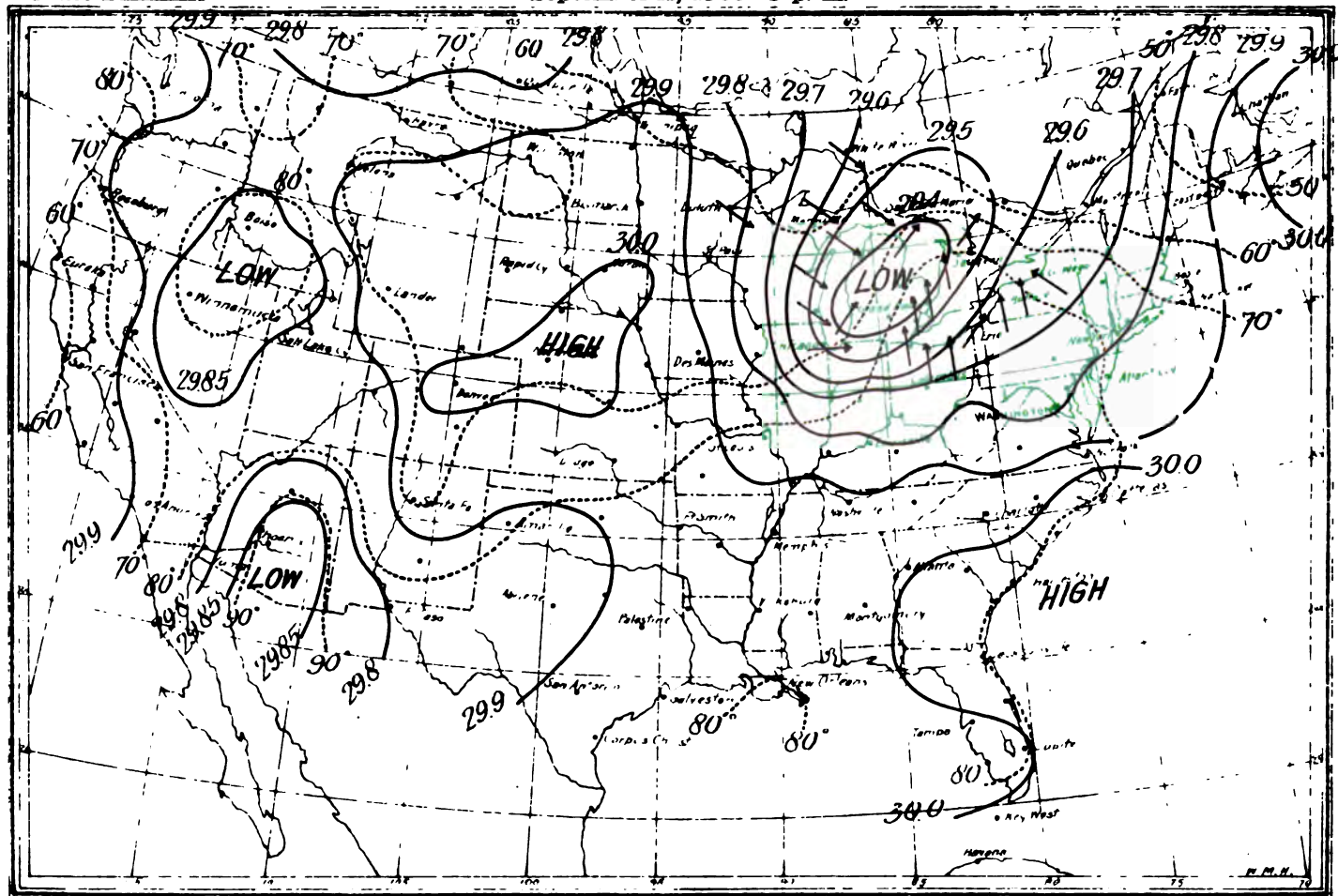


Chart DXXXIII.

October 12, 1876—4:35 p. m.

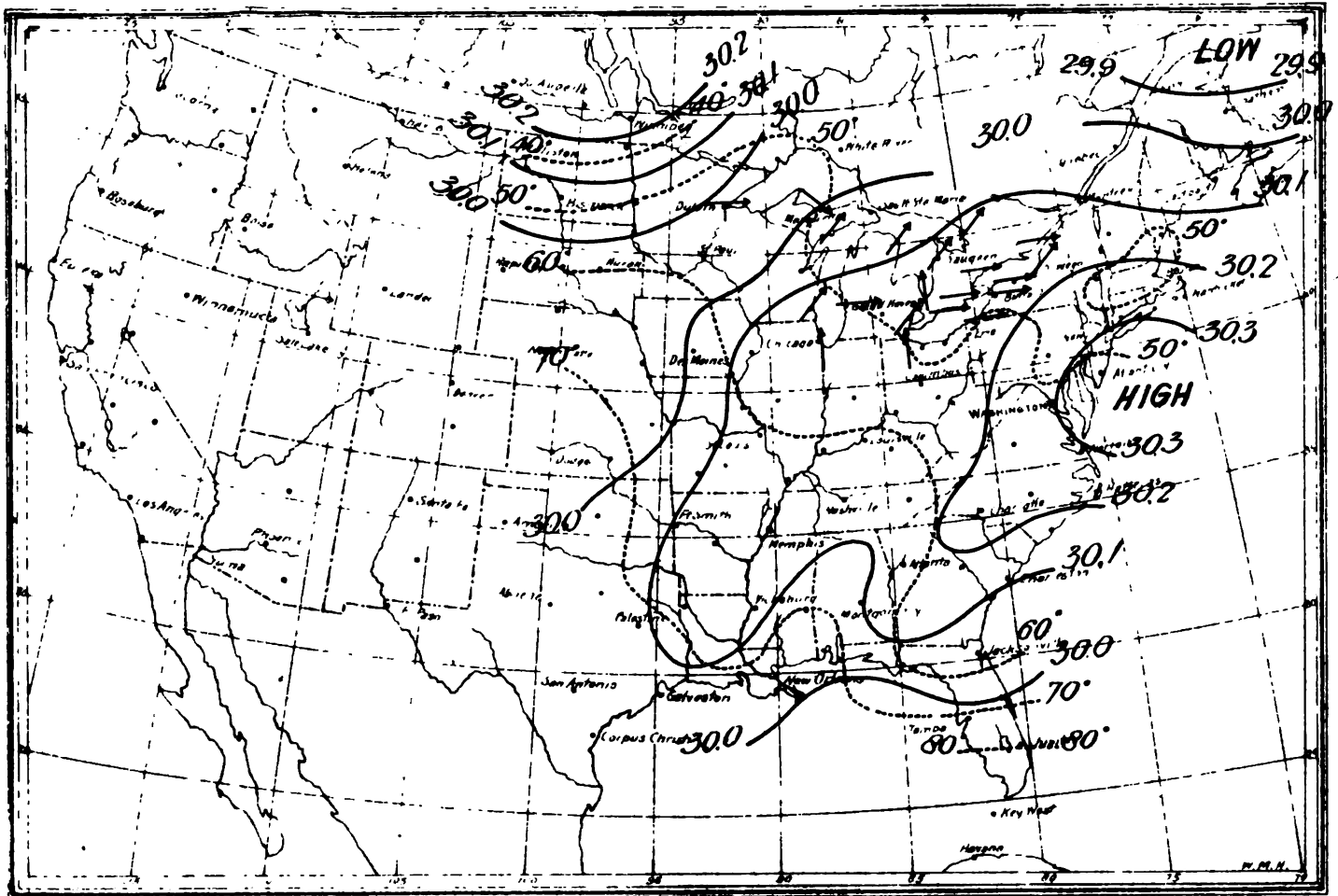


Chart DXXXIV.

October 13, 1876—7:35 a. m.

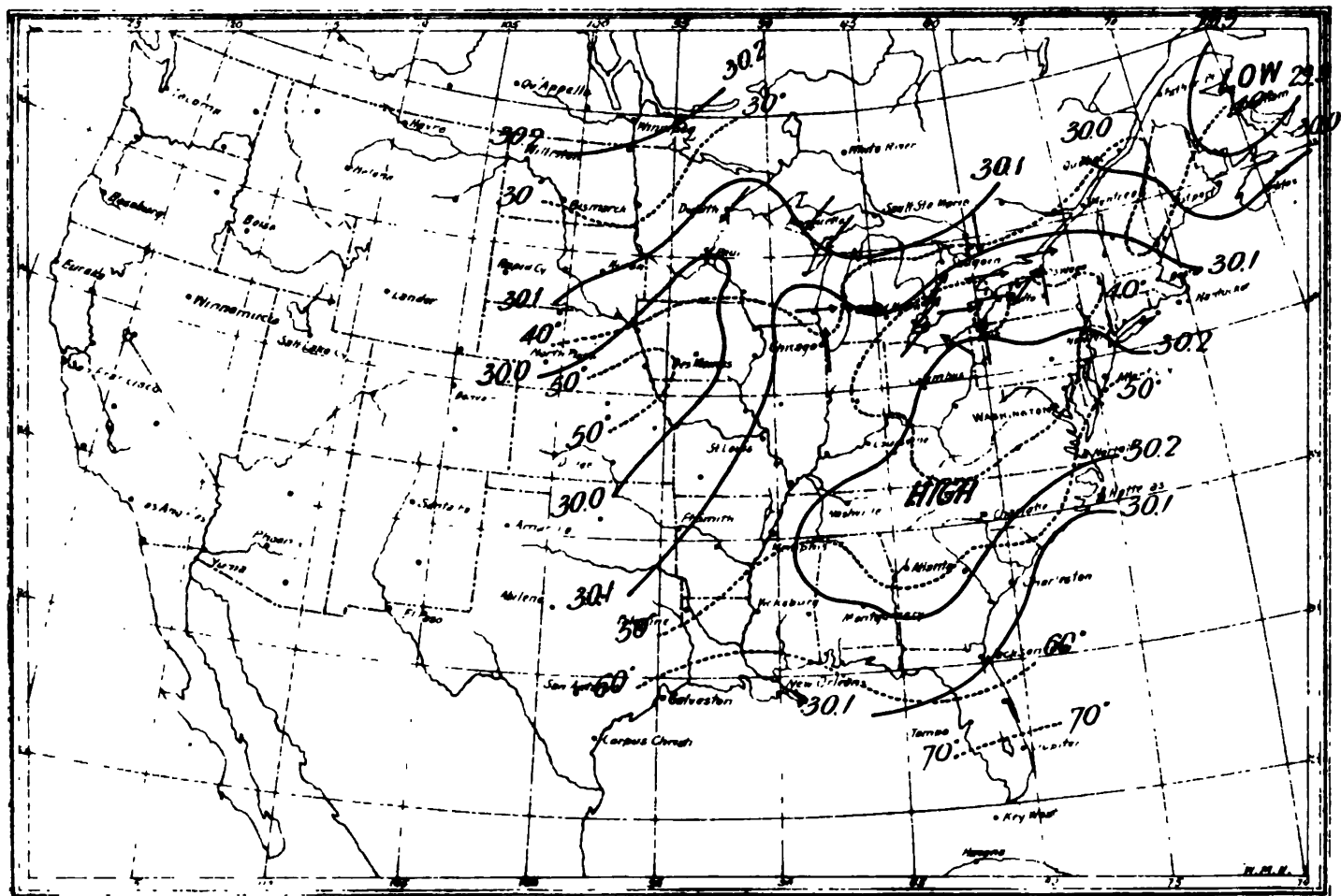


Chart DXXXV.

October 13, 1876—4:35 p. m.

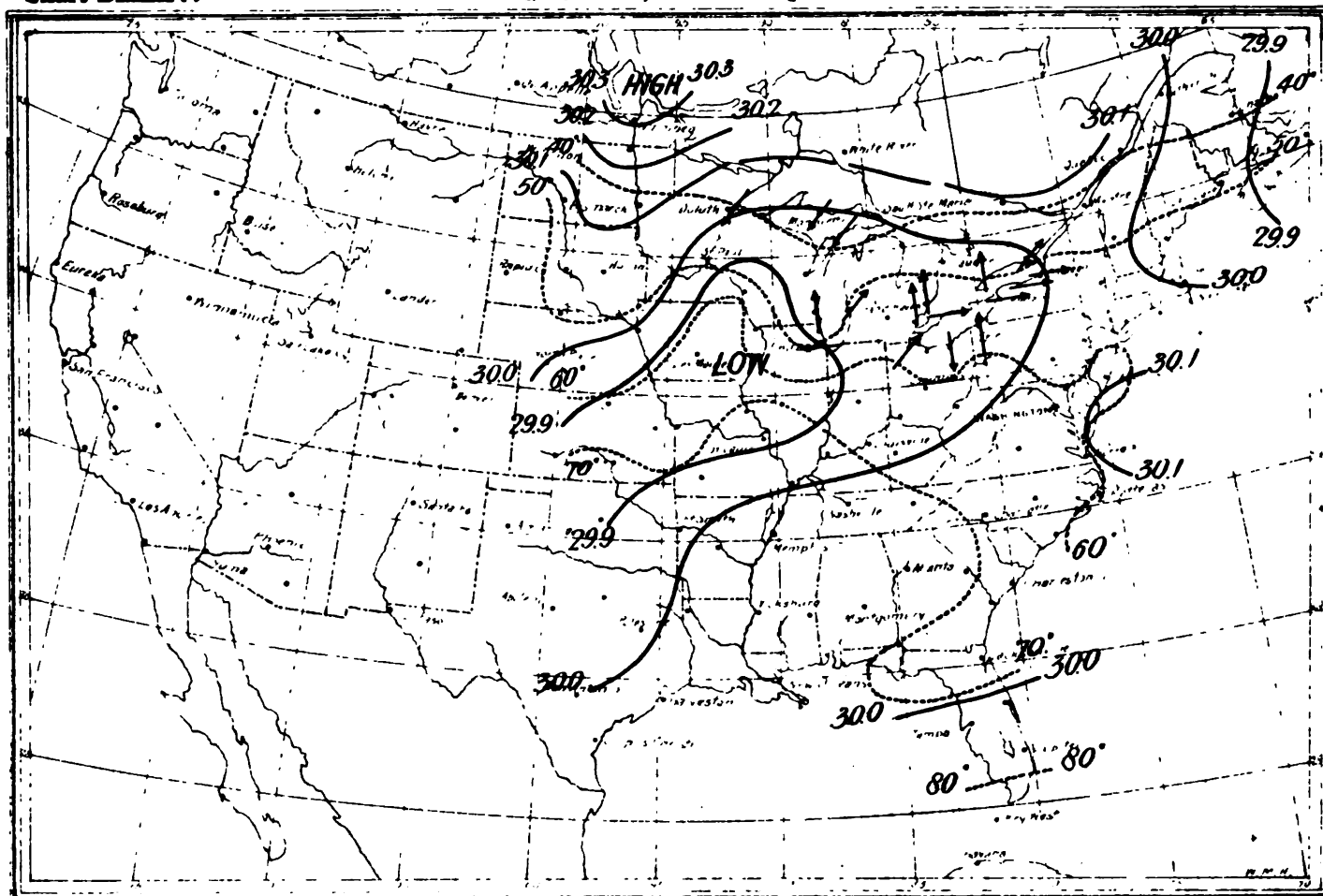


Chart DXXXVI.

October 14, 1876—7:35 a. m.

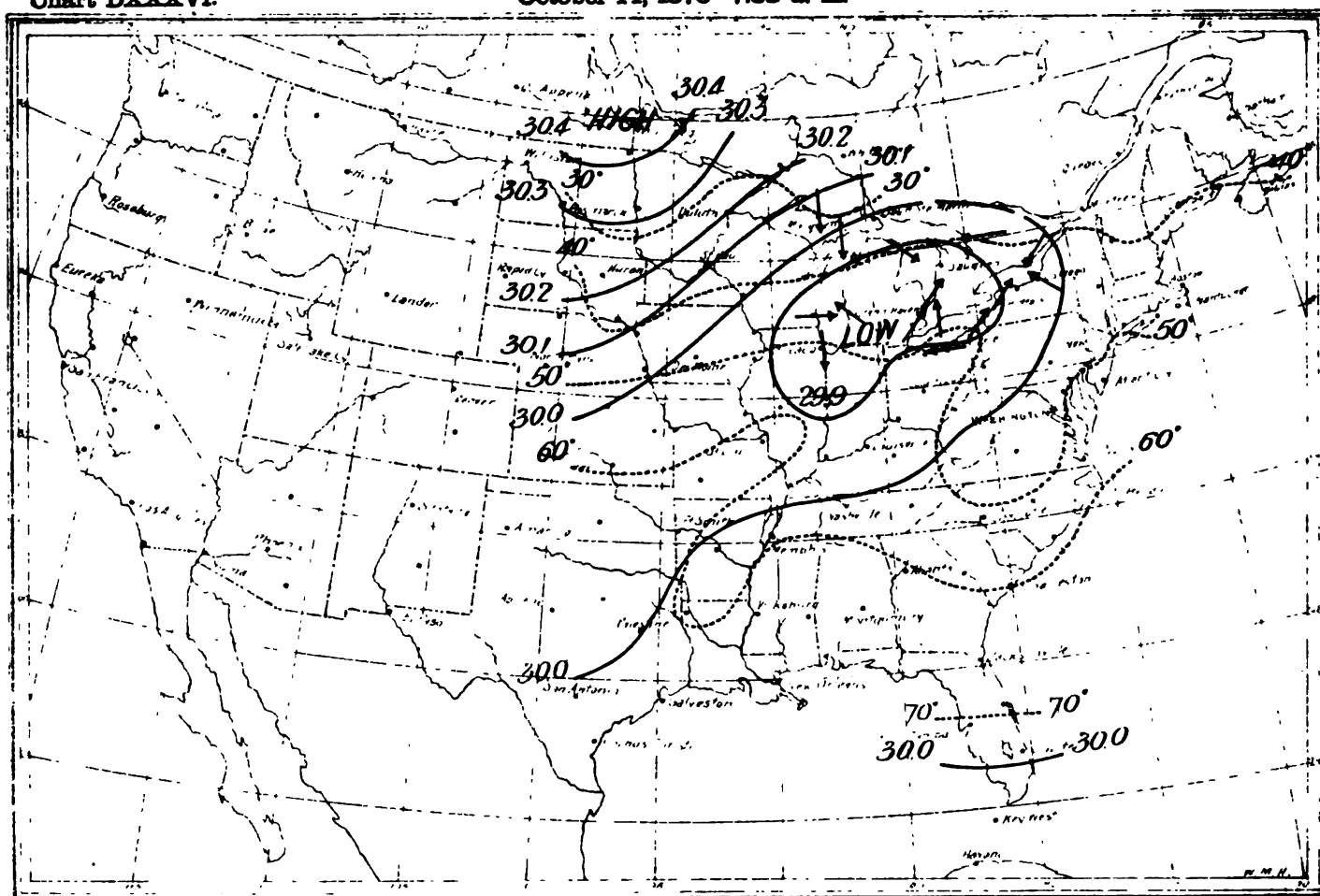


Chart DXXXVII.

October 2, 1877—4:35 p. m.

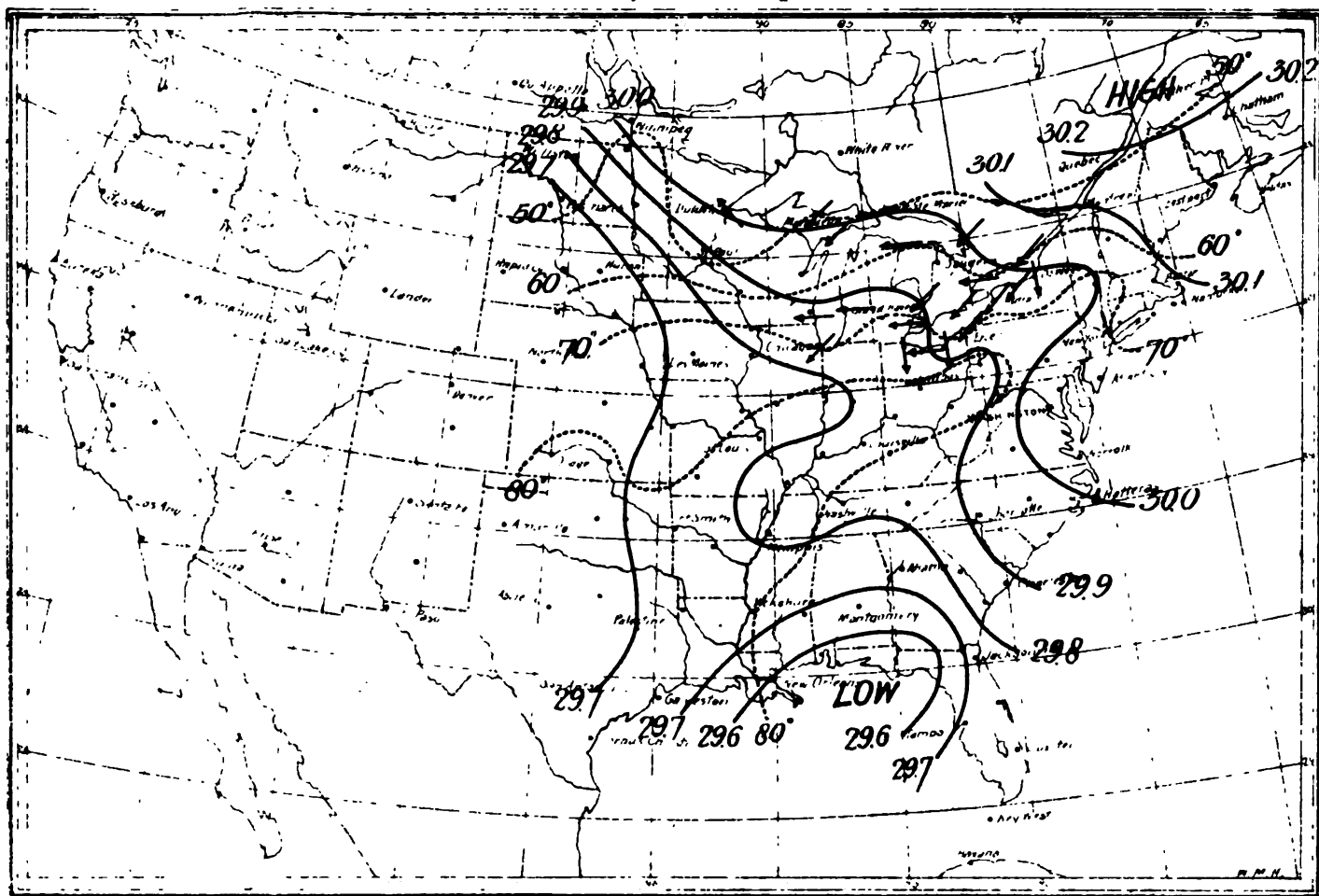
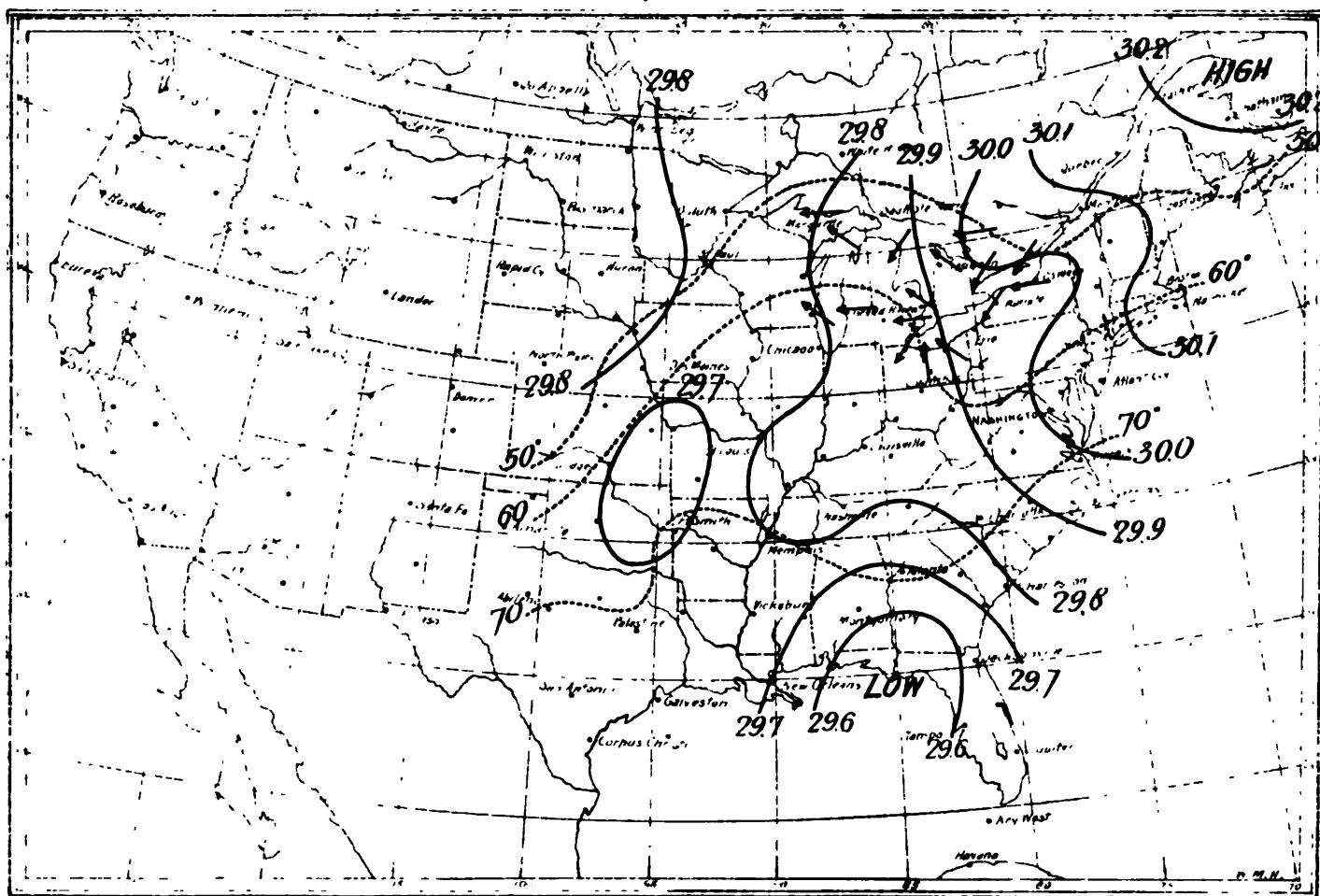


Chart DXXXVIII.

October 8, 1877—7:35 a. m.



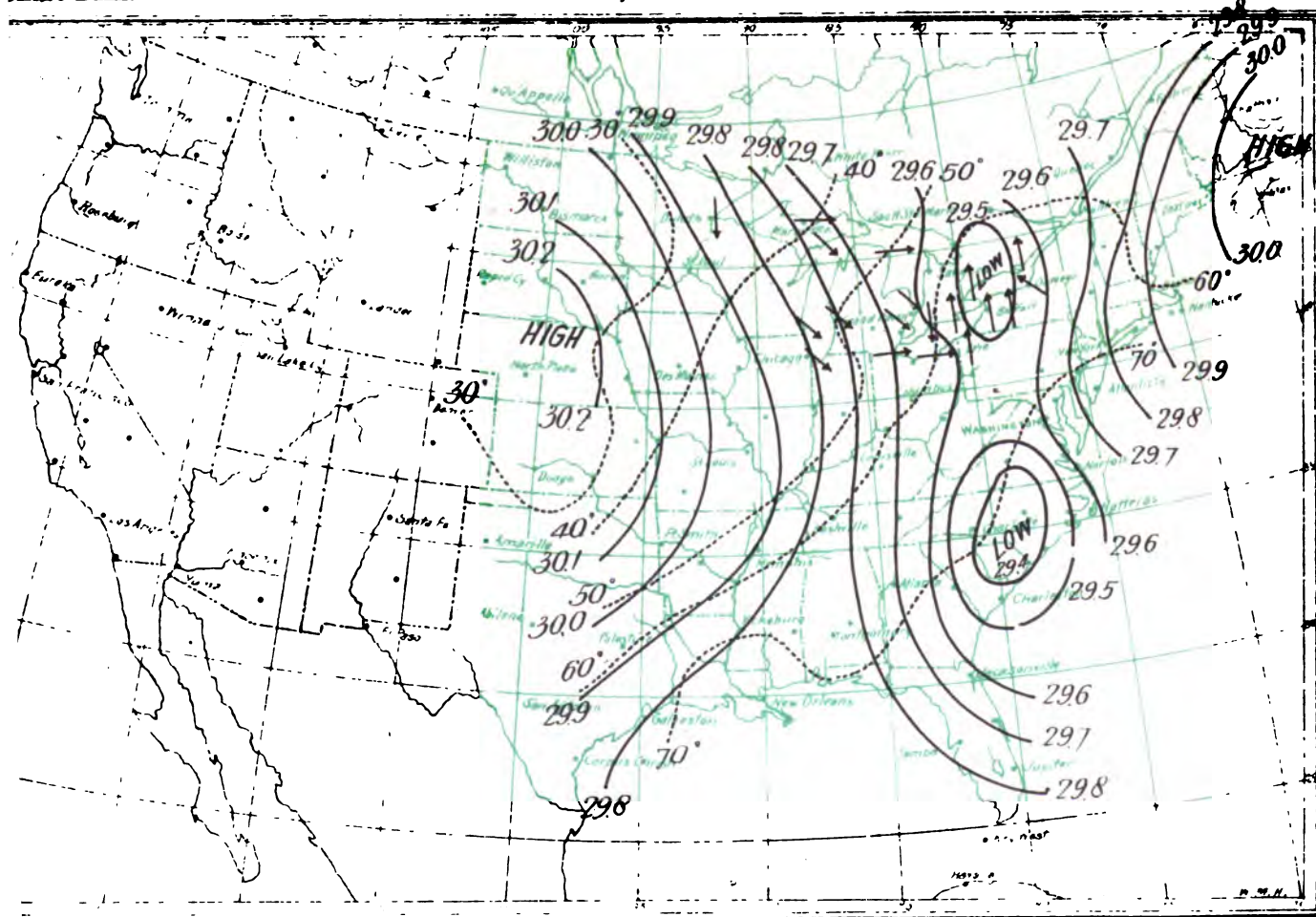
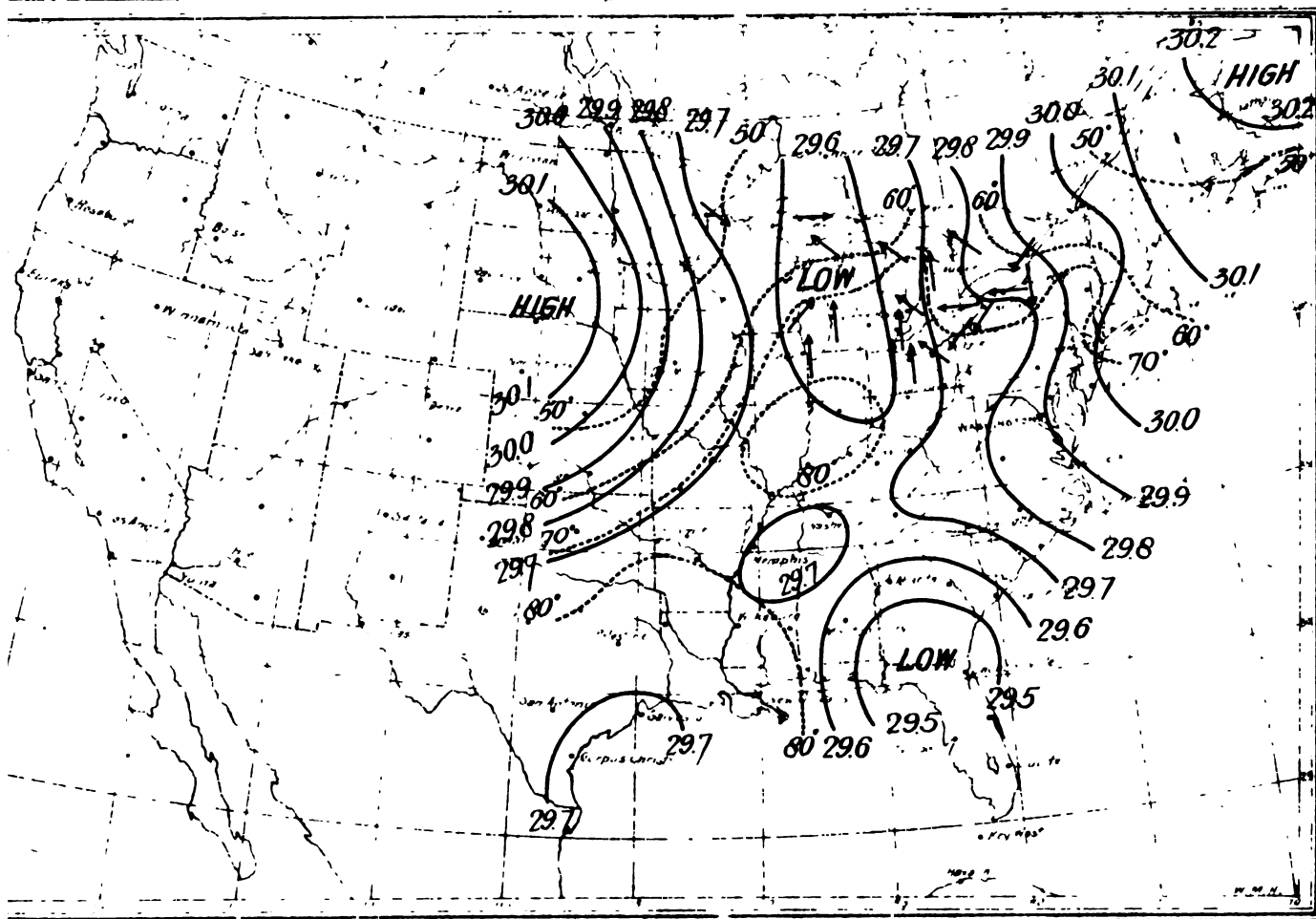


Chart DXLI.

October 8, 1878—7:35 a. m.

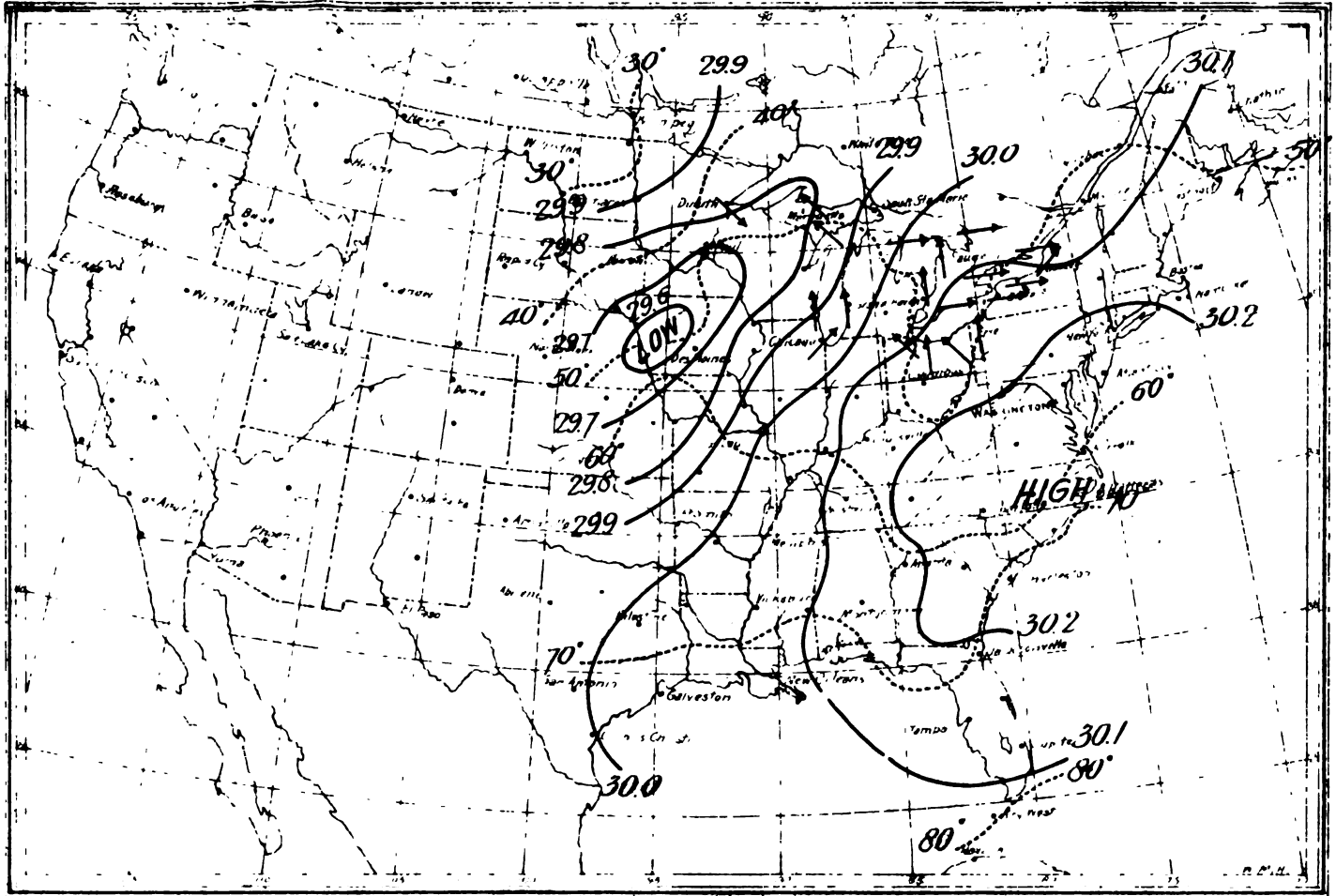
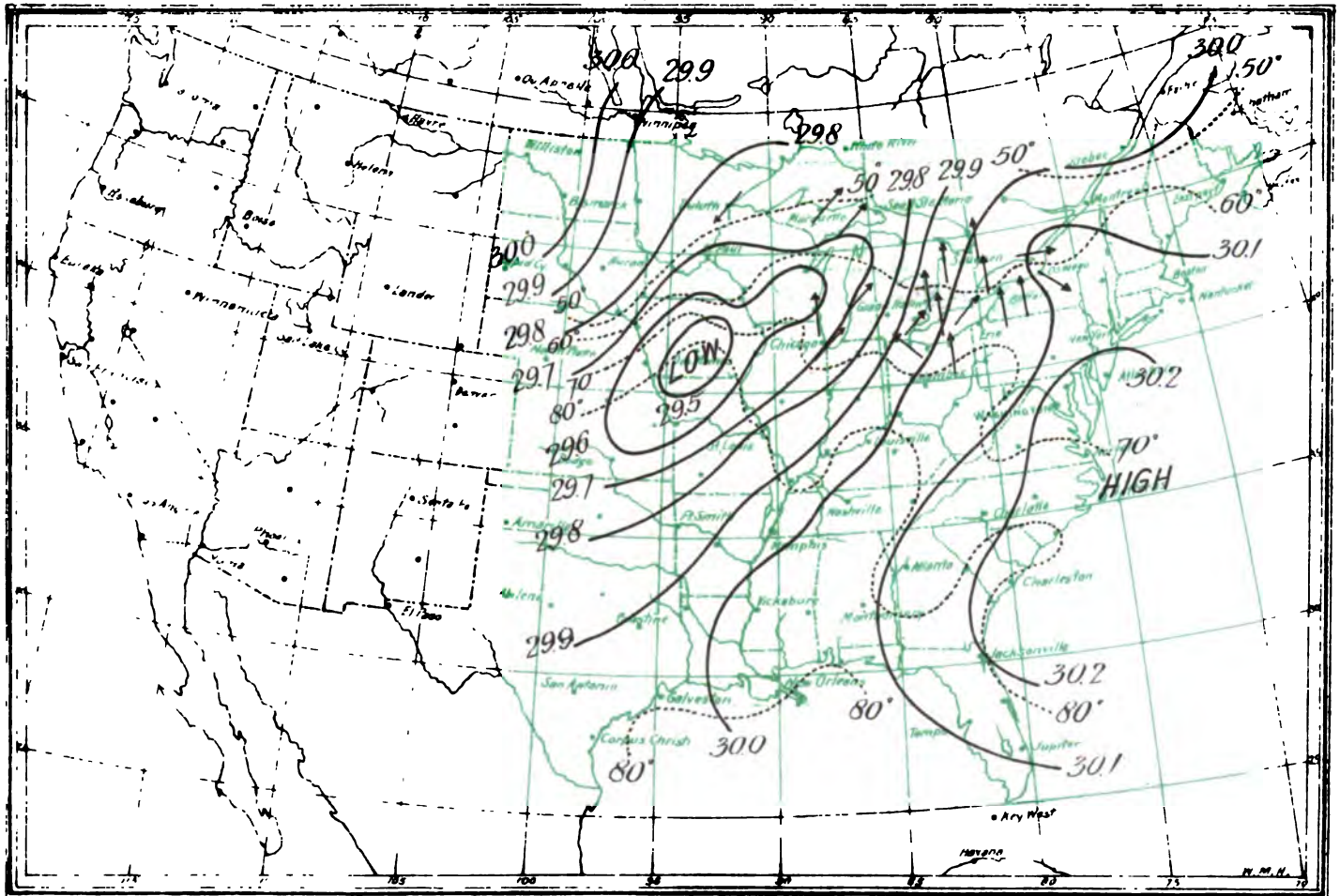


Chart DXLII.

October 8, 1878—4:35 p. m.



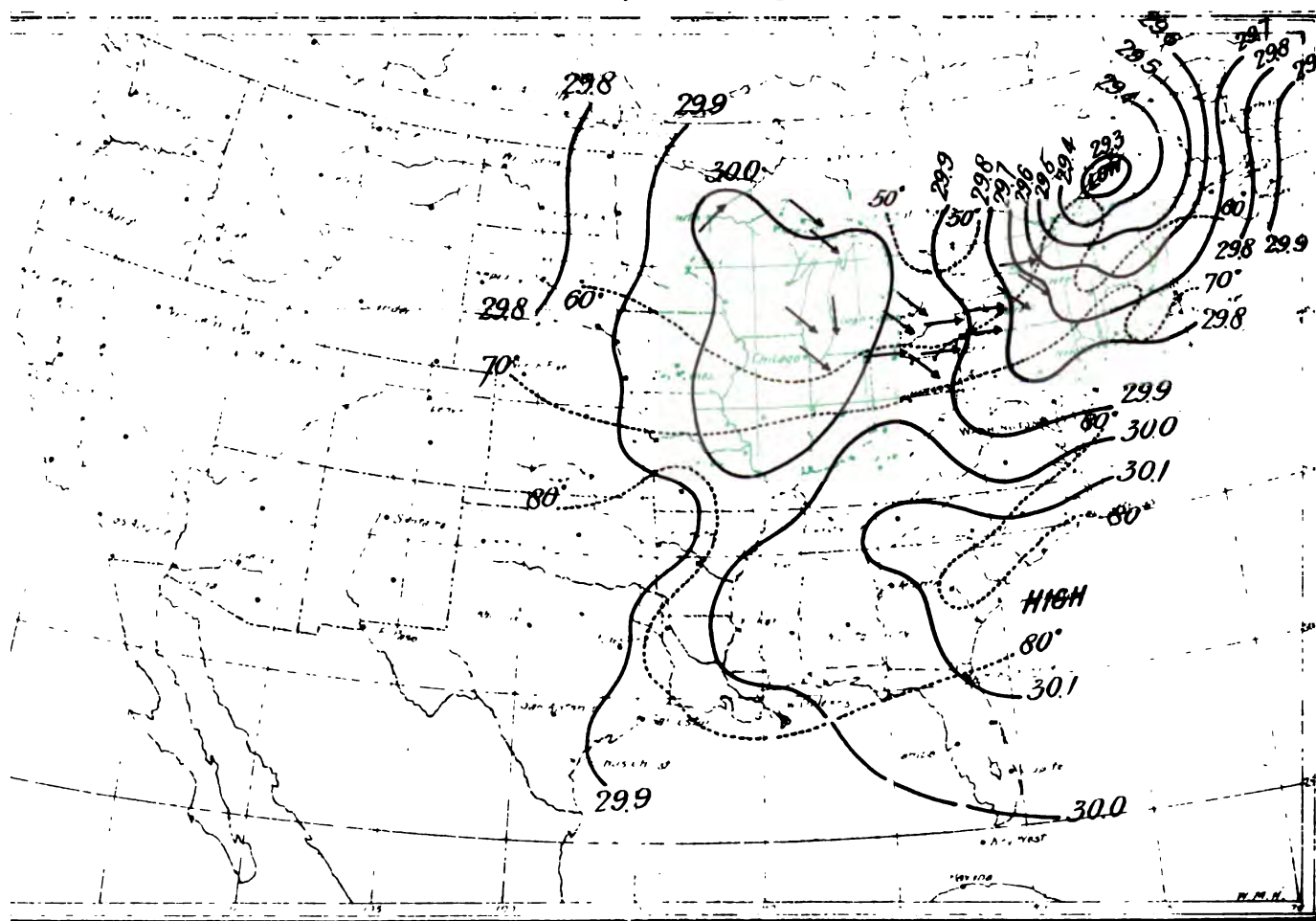
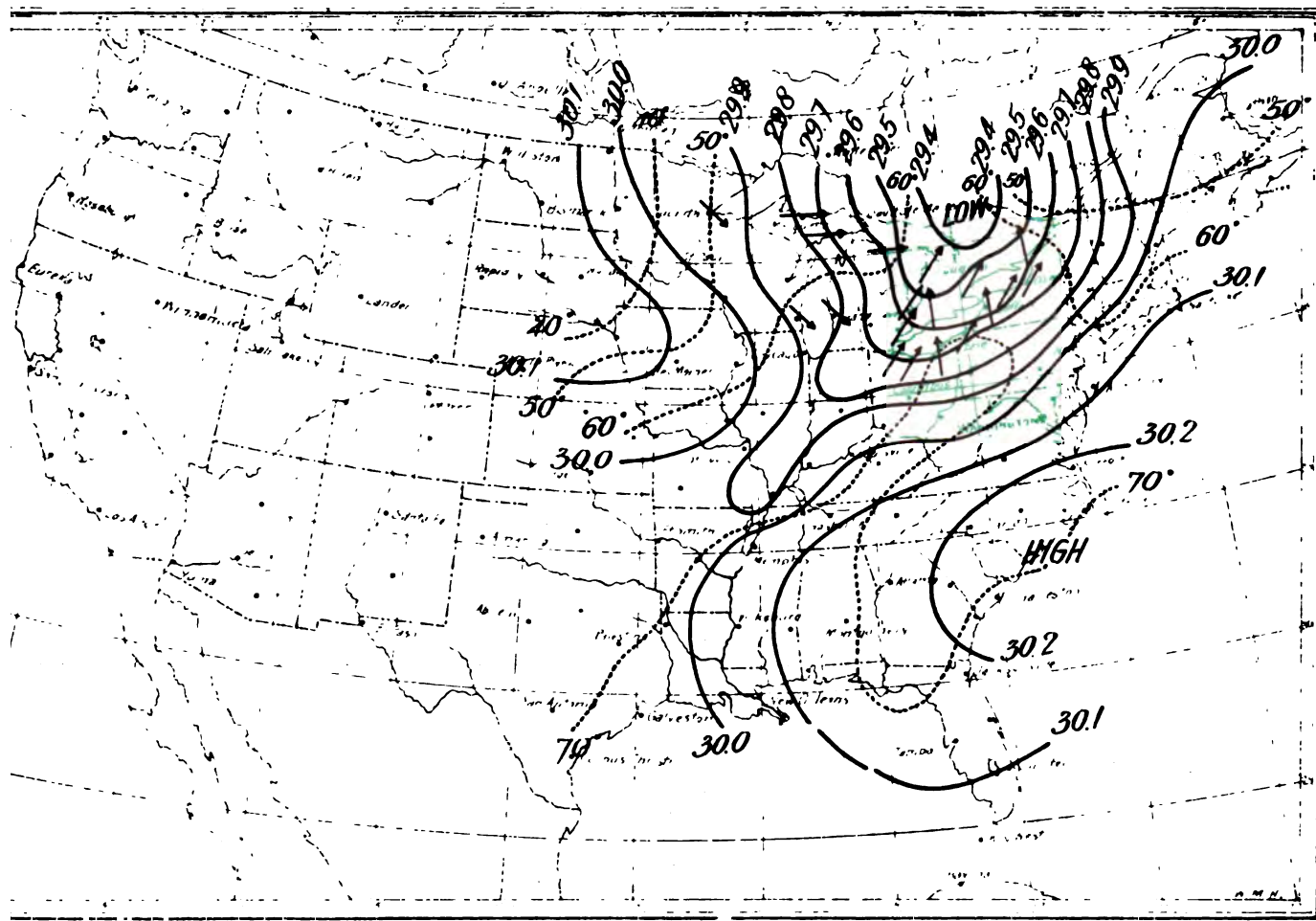


Chart DXLIV.

October 21, 1879—4:35 p. m.

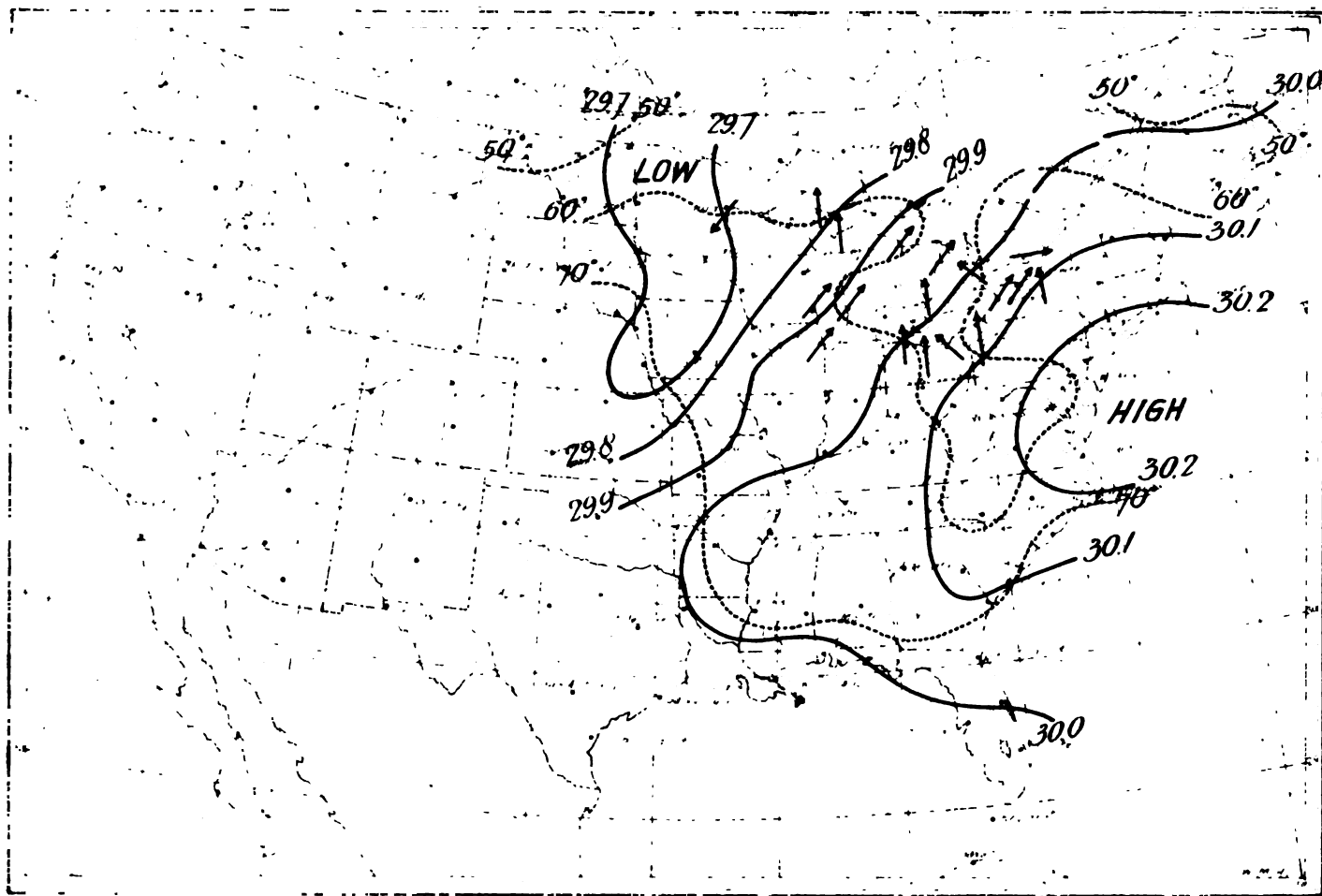


Chart DXLVI.

October 22, 1879—7:35 a. m.

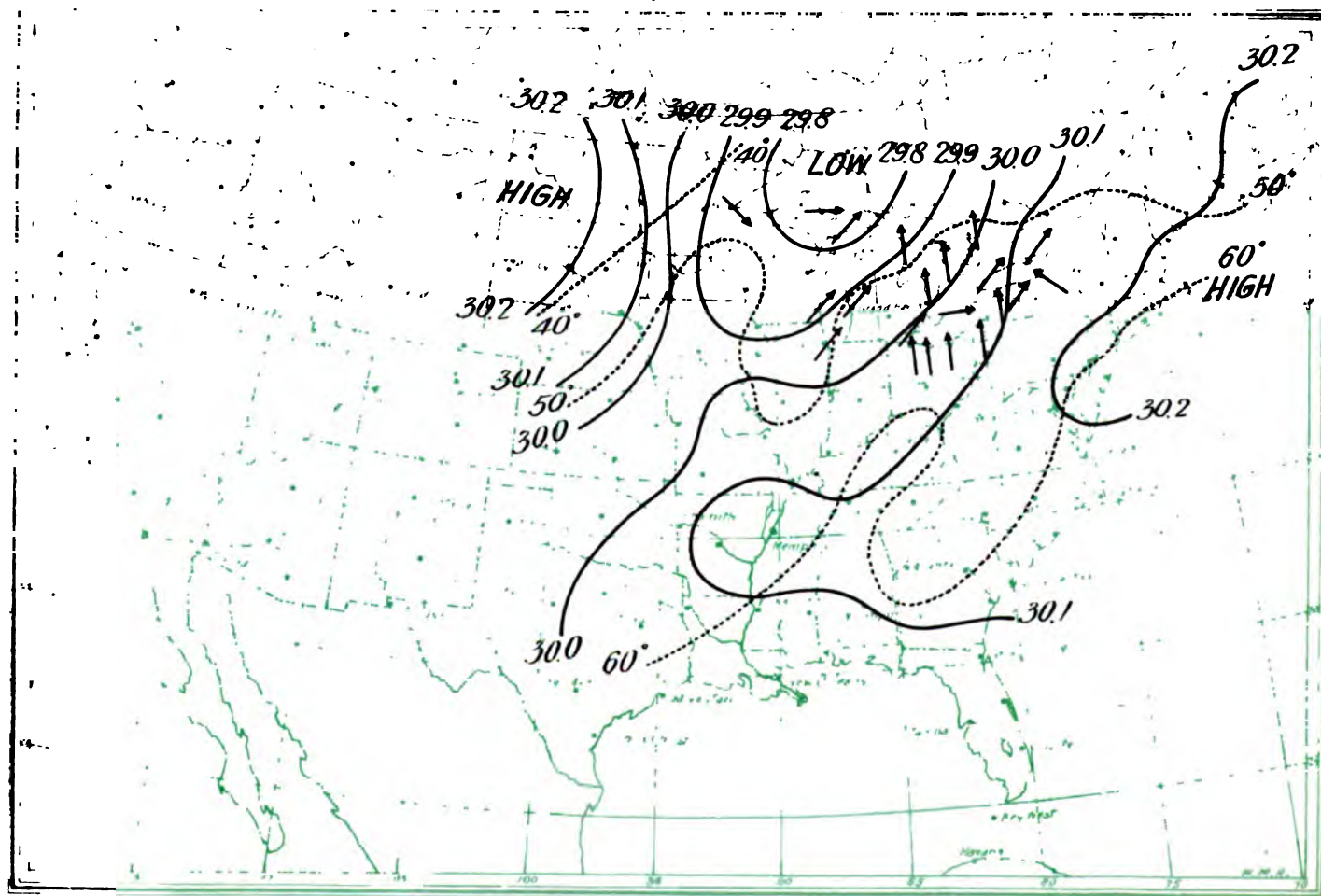


Chart DXLVII.

October 22, 1879—4:35 p. m.

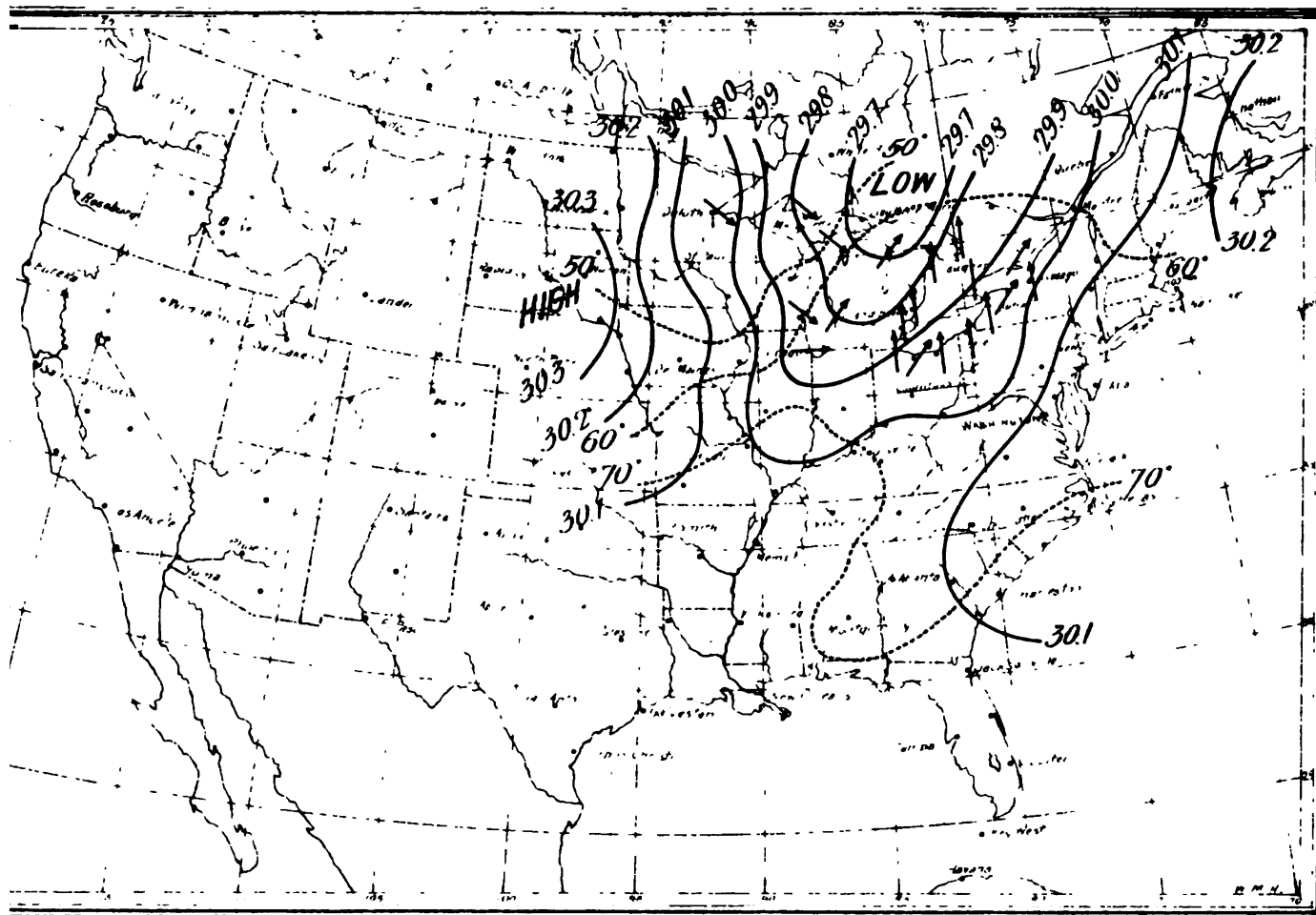


Chart DXLVIII.

October 23, 1879—7:35 a. m.

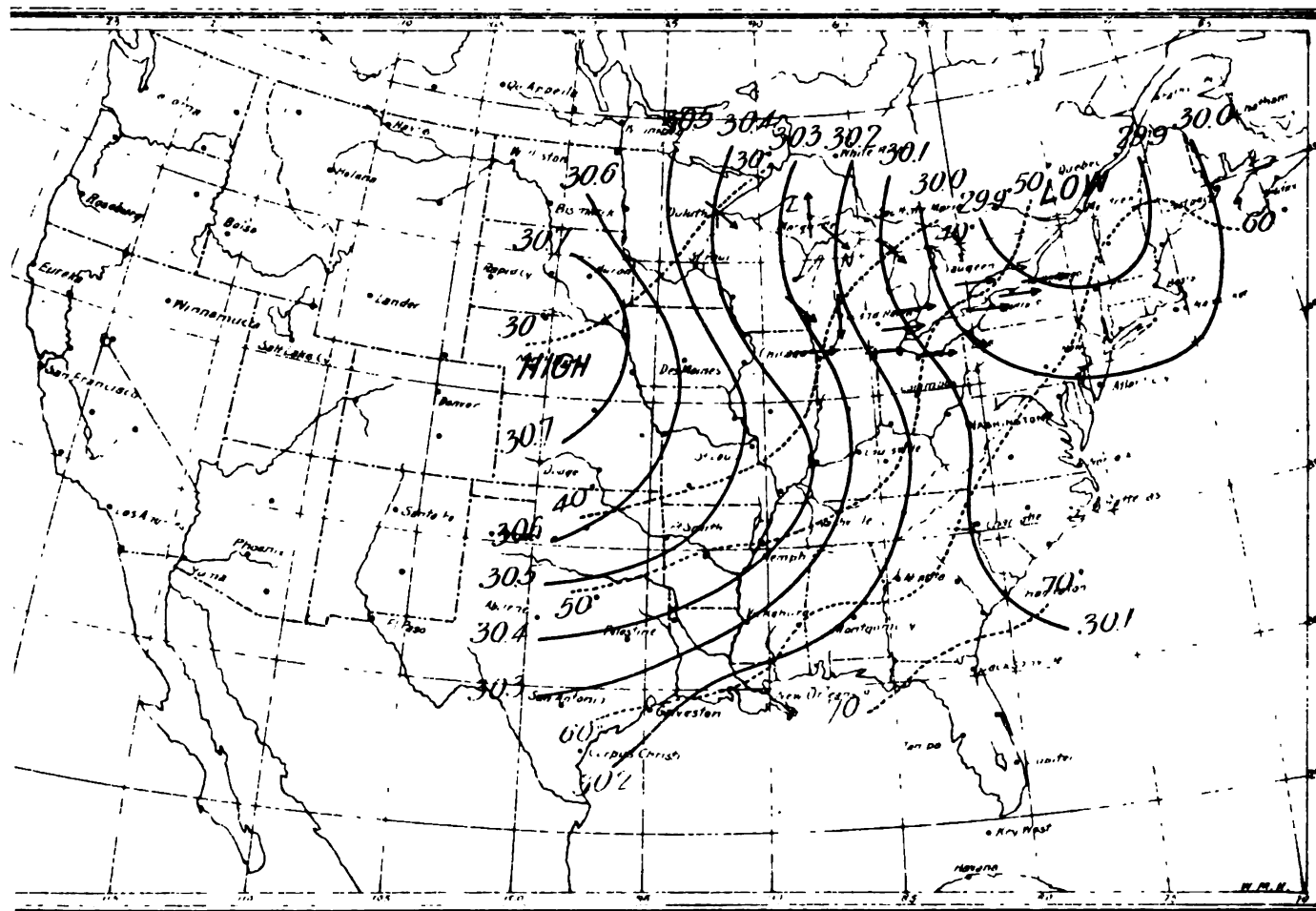


Chart DXLIX.

October 28, 1879—7:35 a. m.

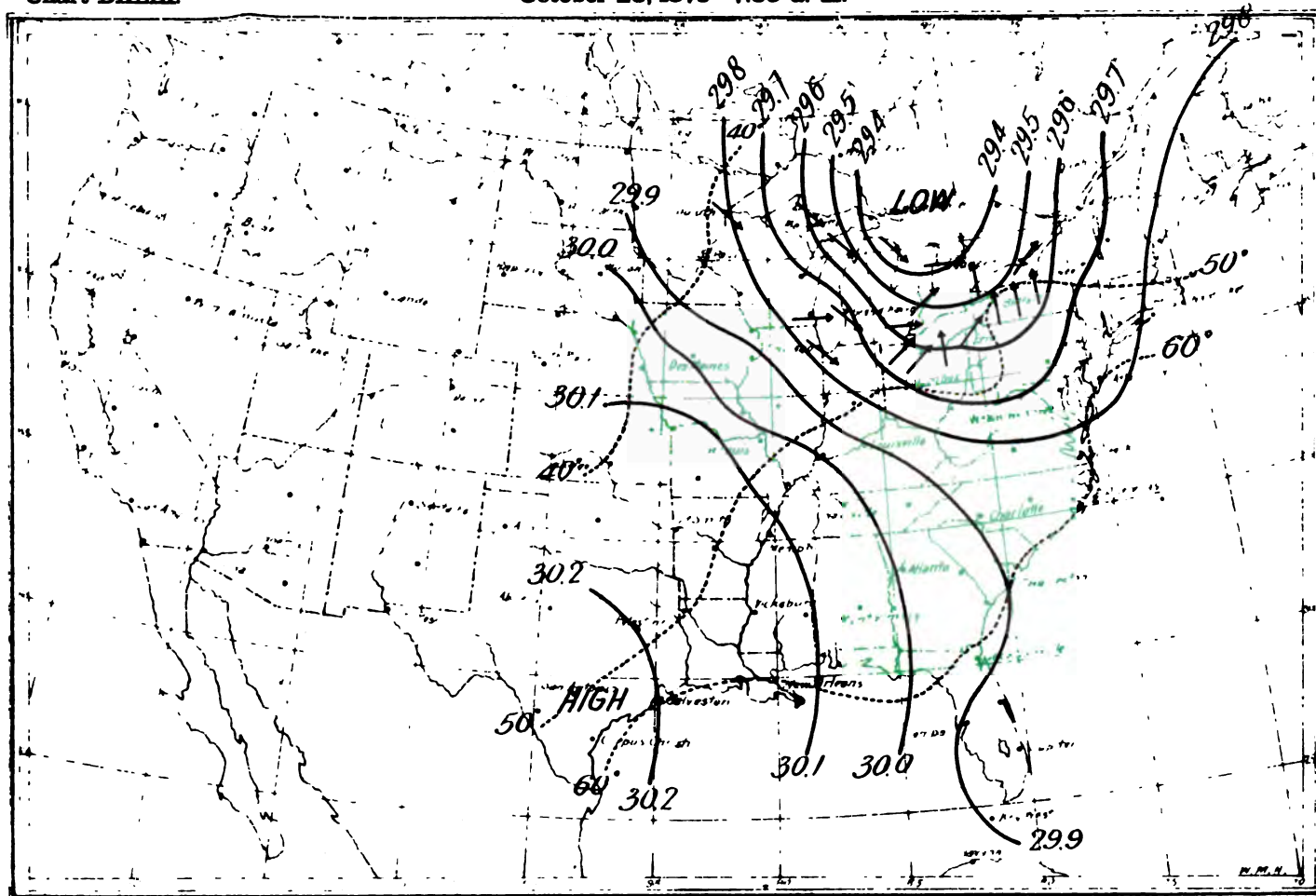
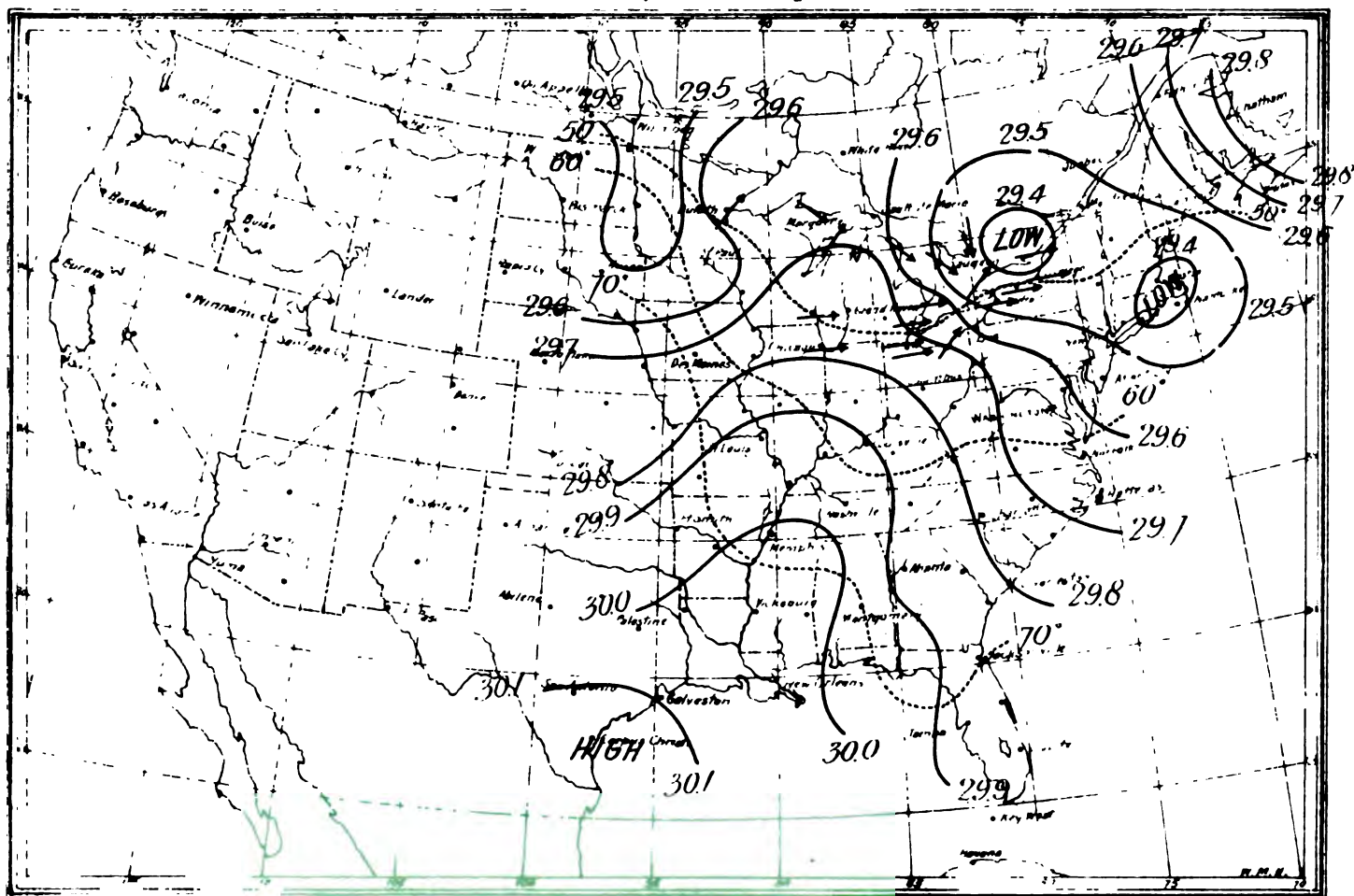


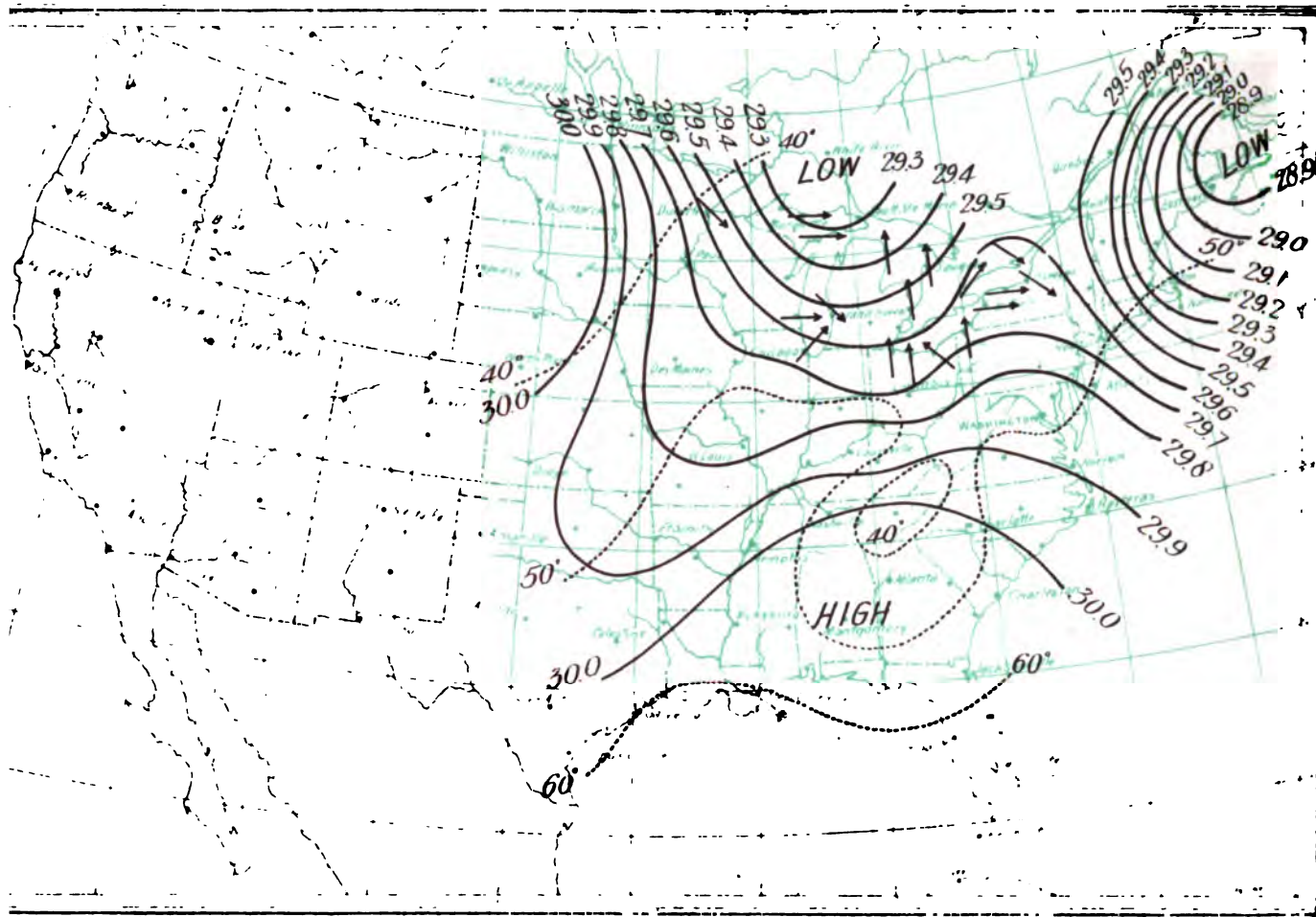
Chart DL.

October 28, 1879—4:35 p. m.



hart DLI.

October 29, 1879—7:35 a. m.



hart DLI.

October 29, 1879—4:35 p. m.

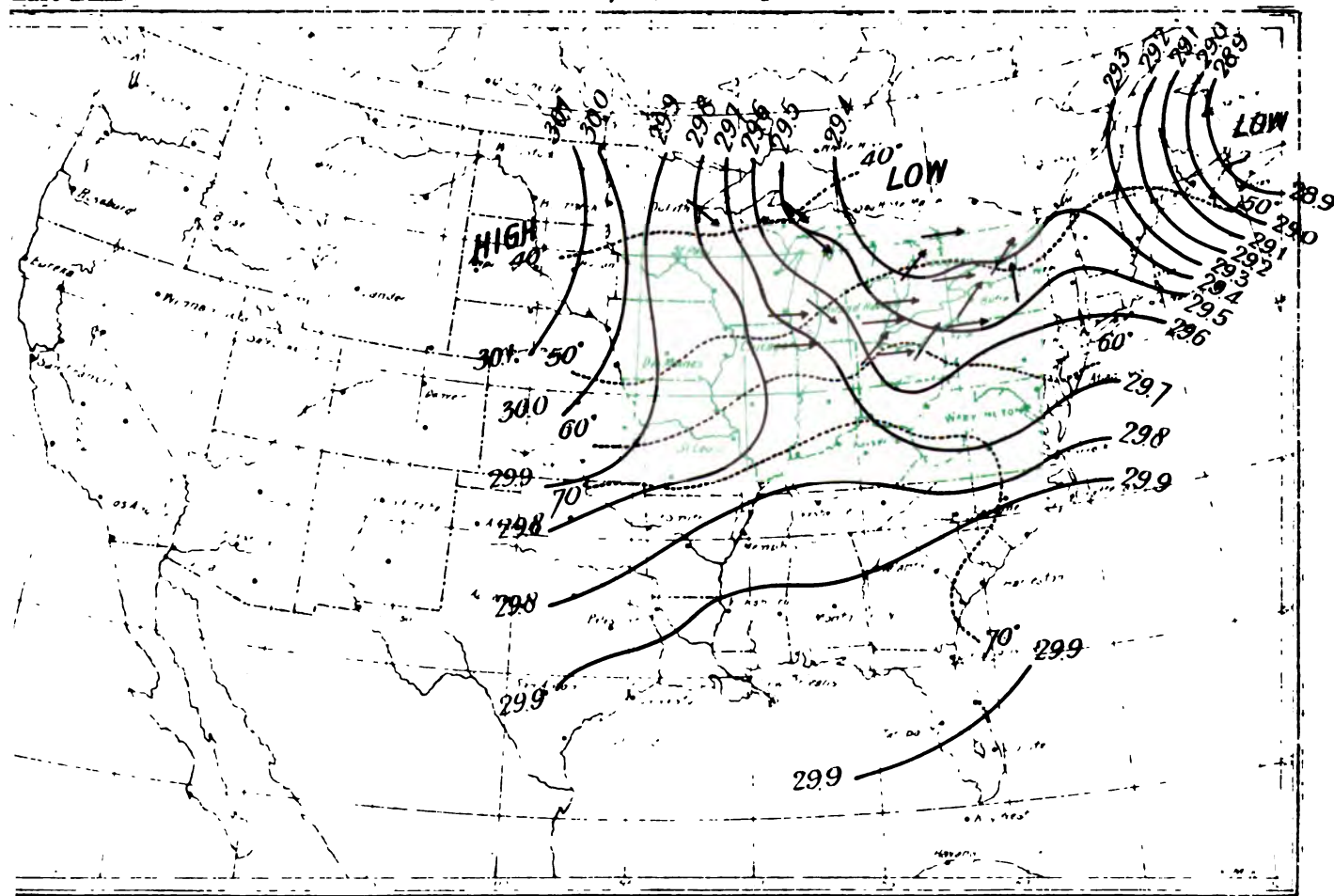


Chart DLIII.

October 15, 1880—8 p. m.

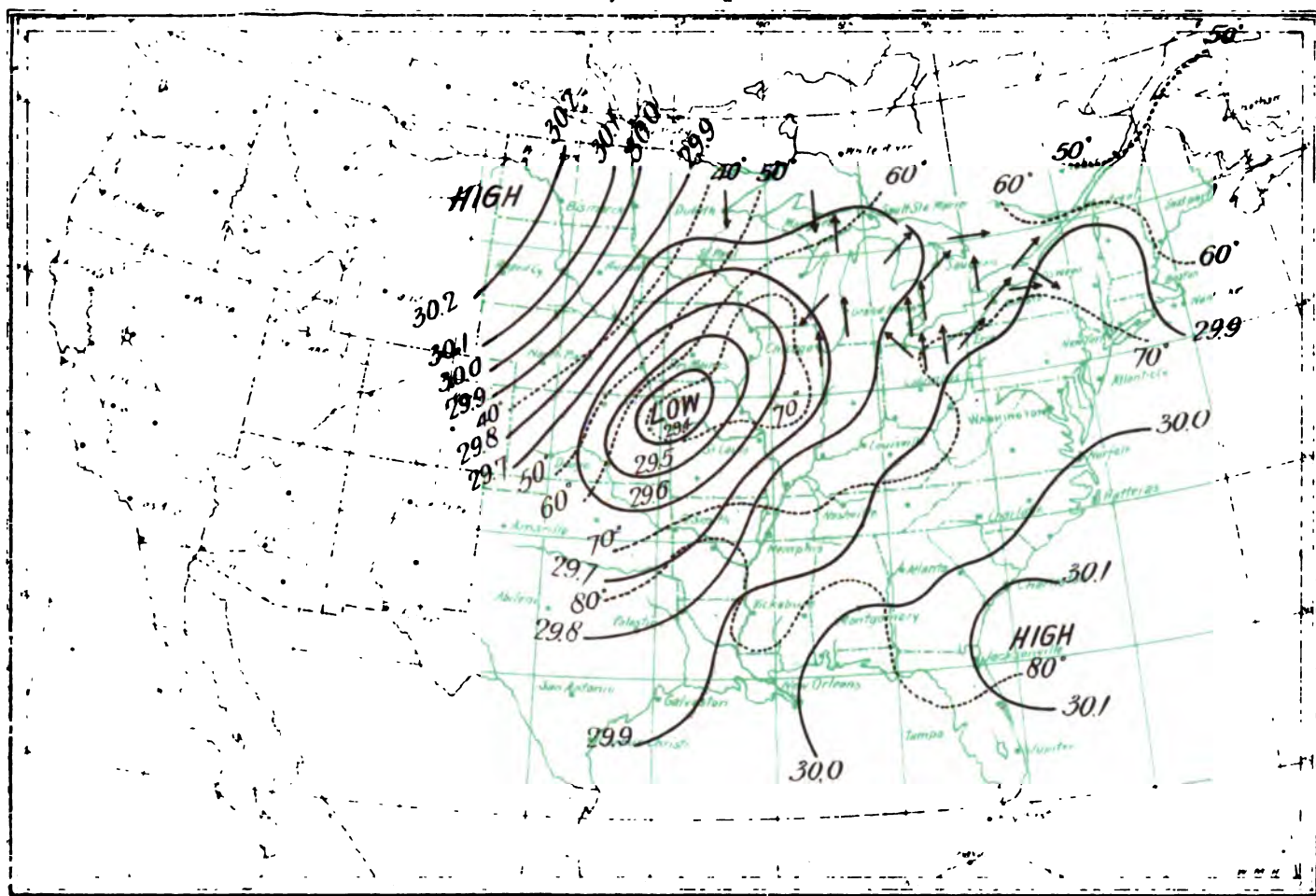
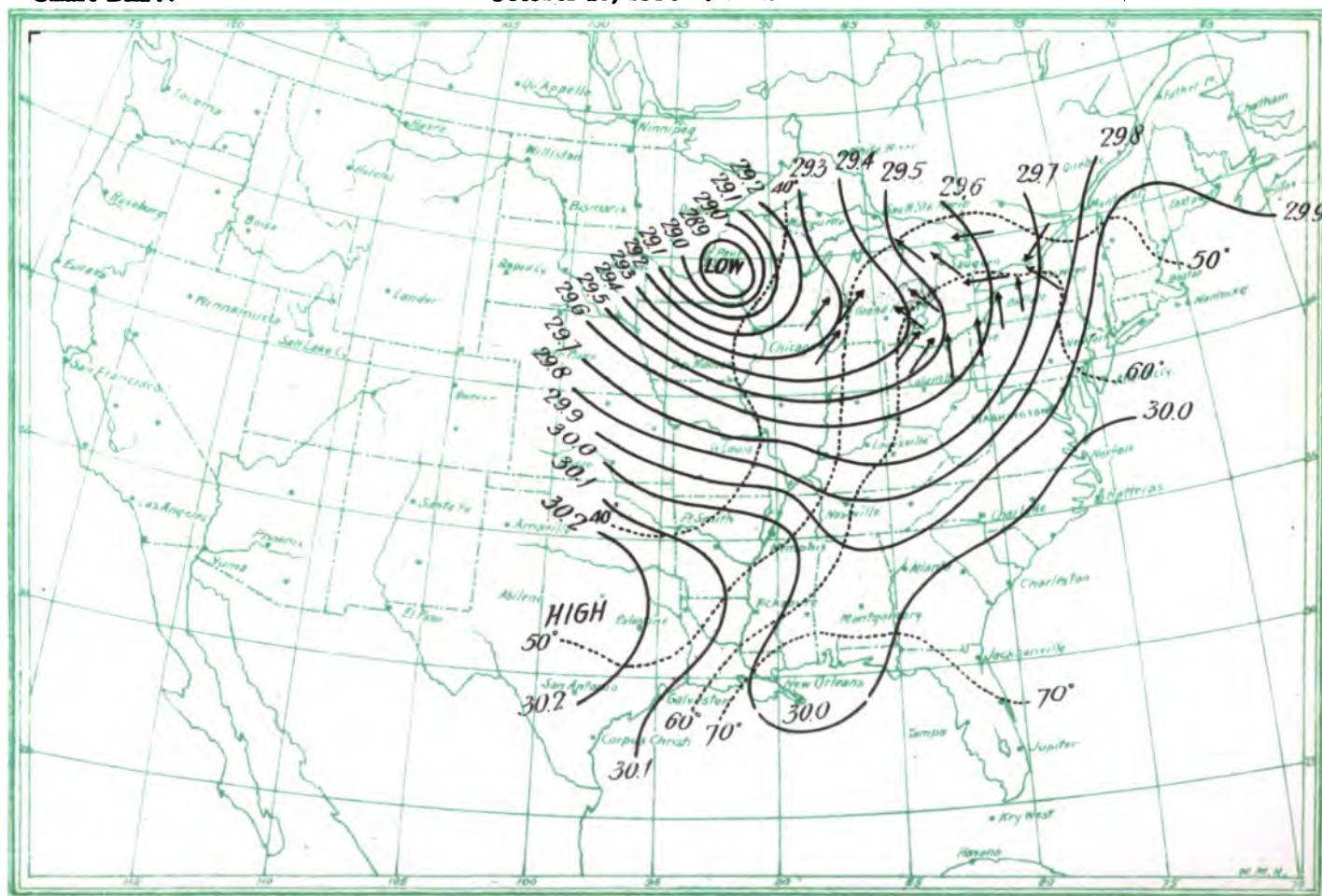
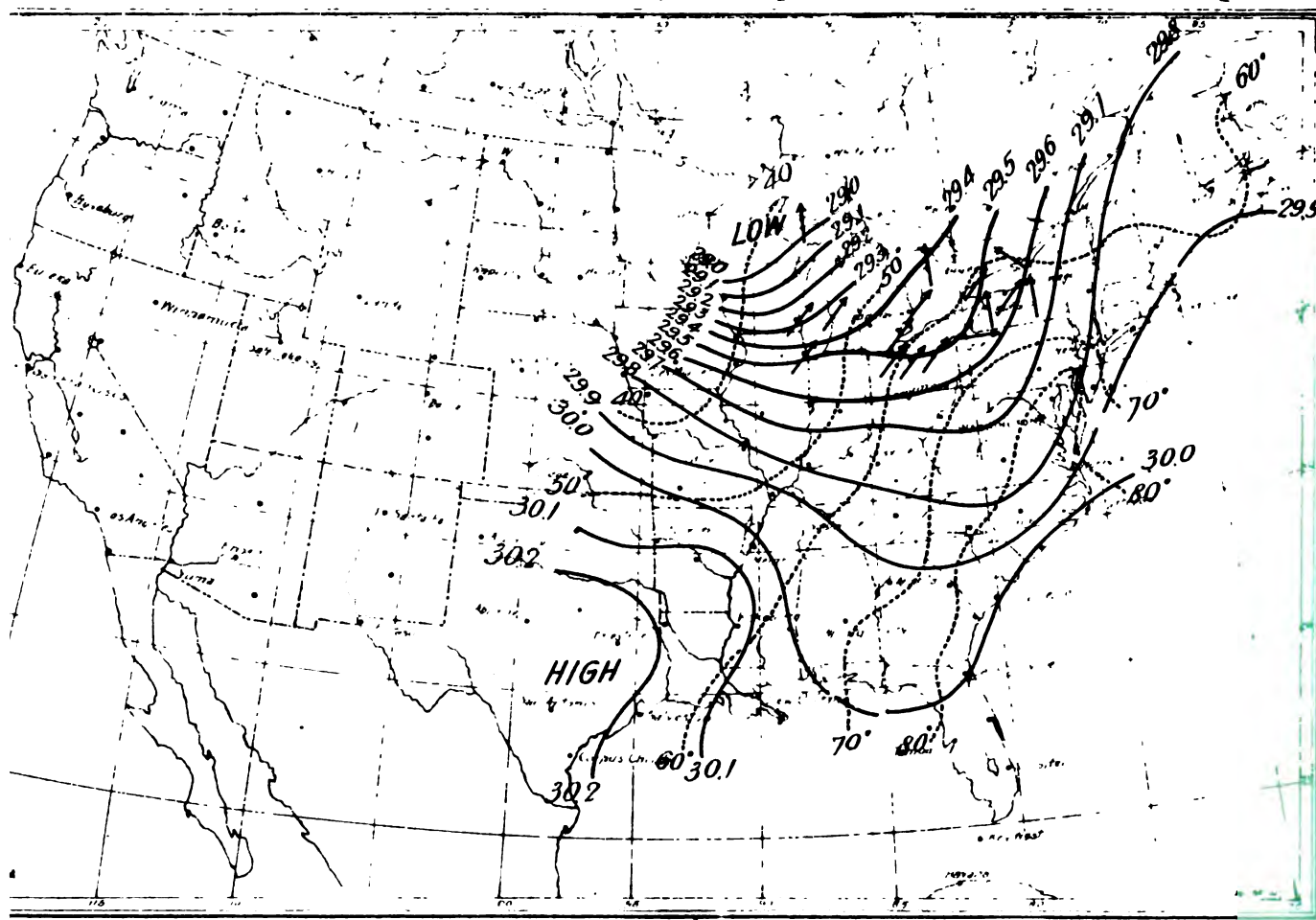


Chart DLIV.

October 16, 1880—7 a. m.



October 16, 1880—3 p. m.



October 17, 1880—7 a. m.

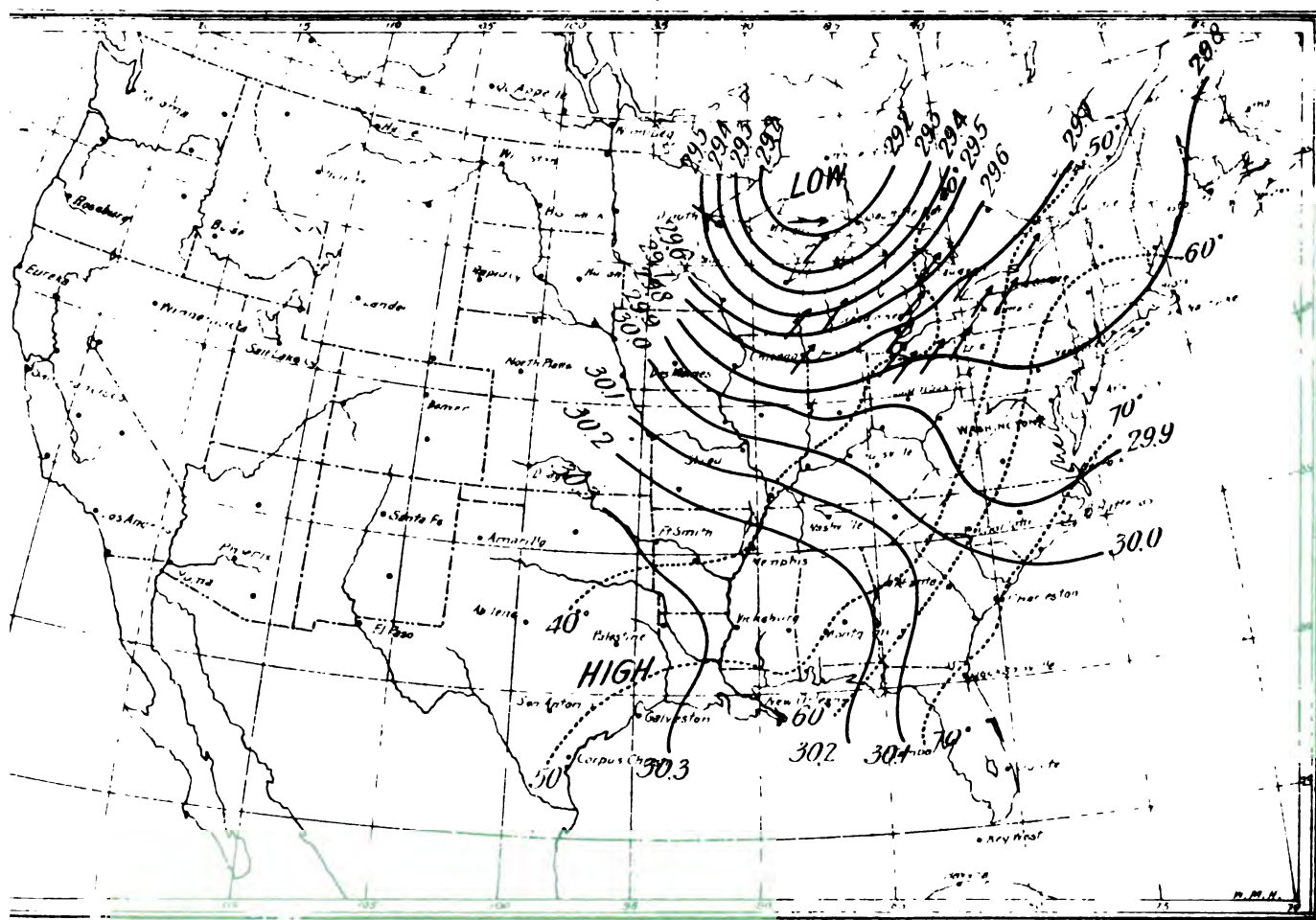


Chart DLVII.

October 11, 1881—7 a. m.

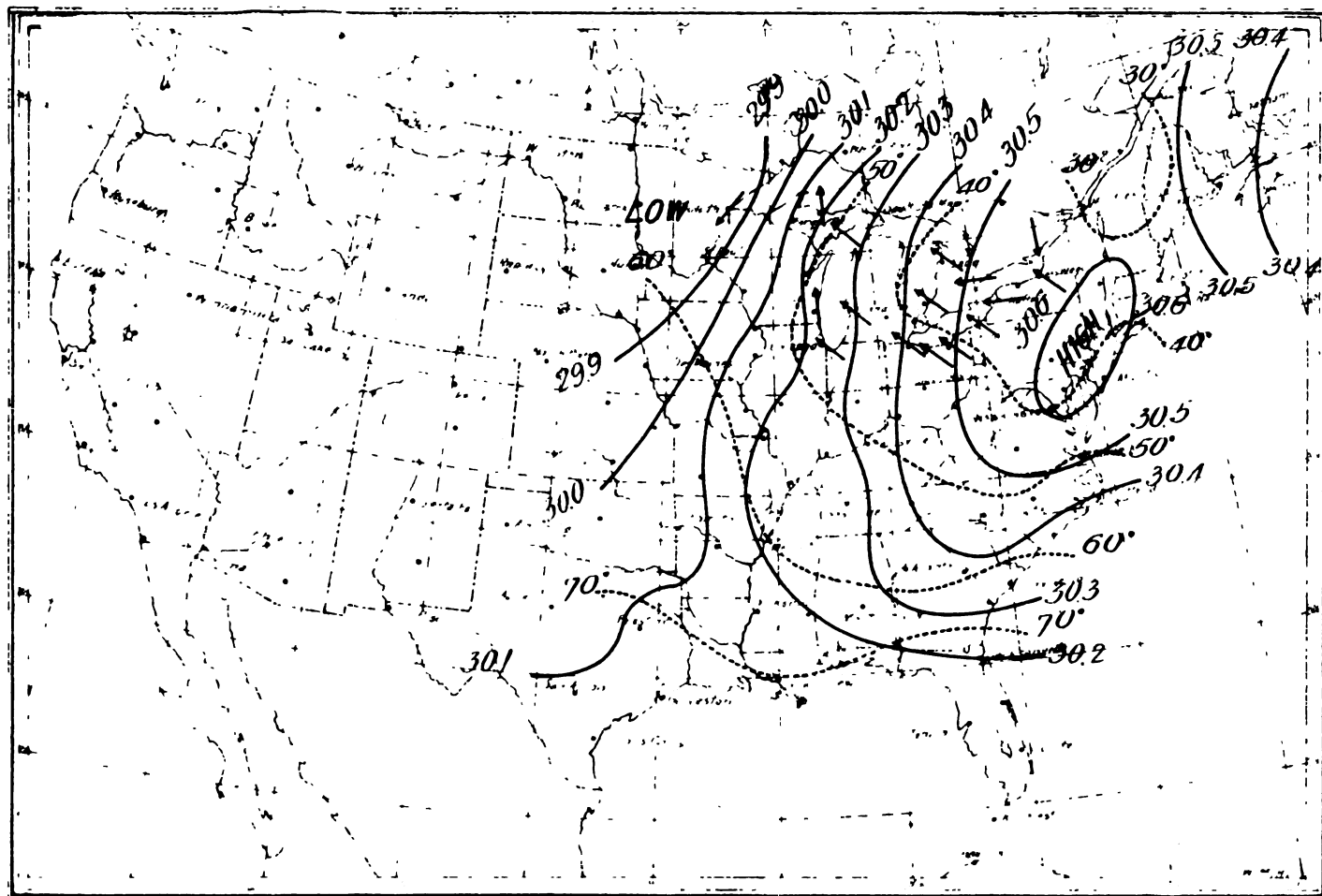
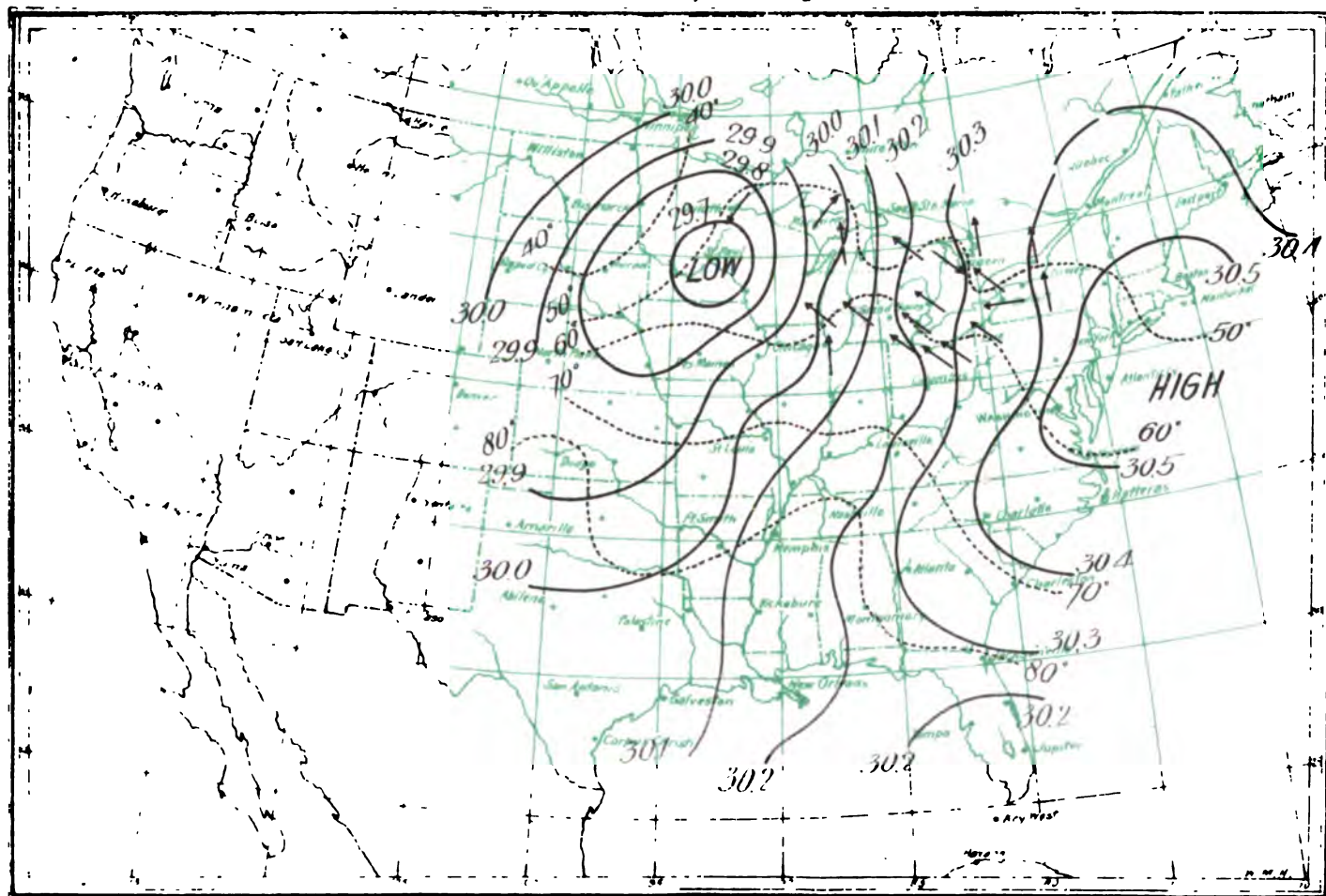


Chart DLVIII.

October 11, 1881—8 p. m.



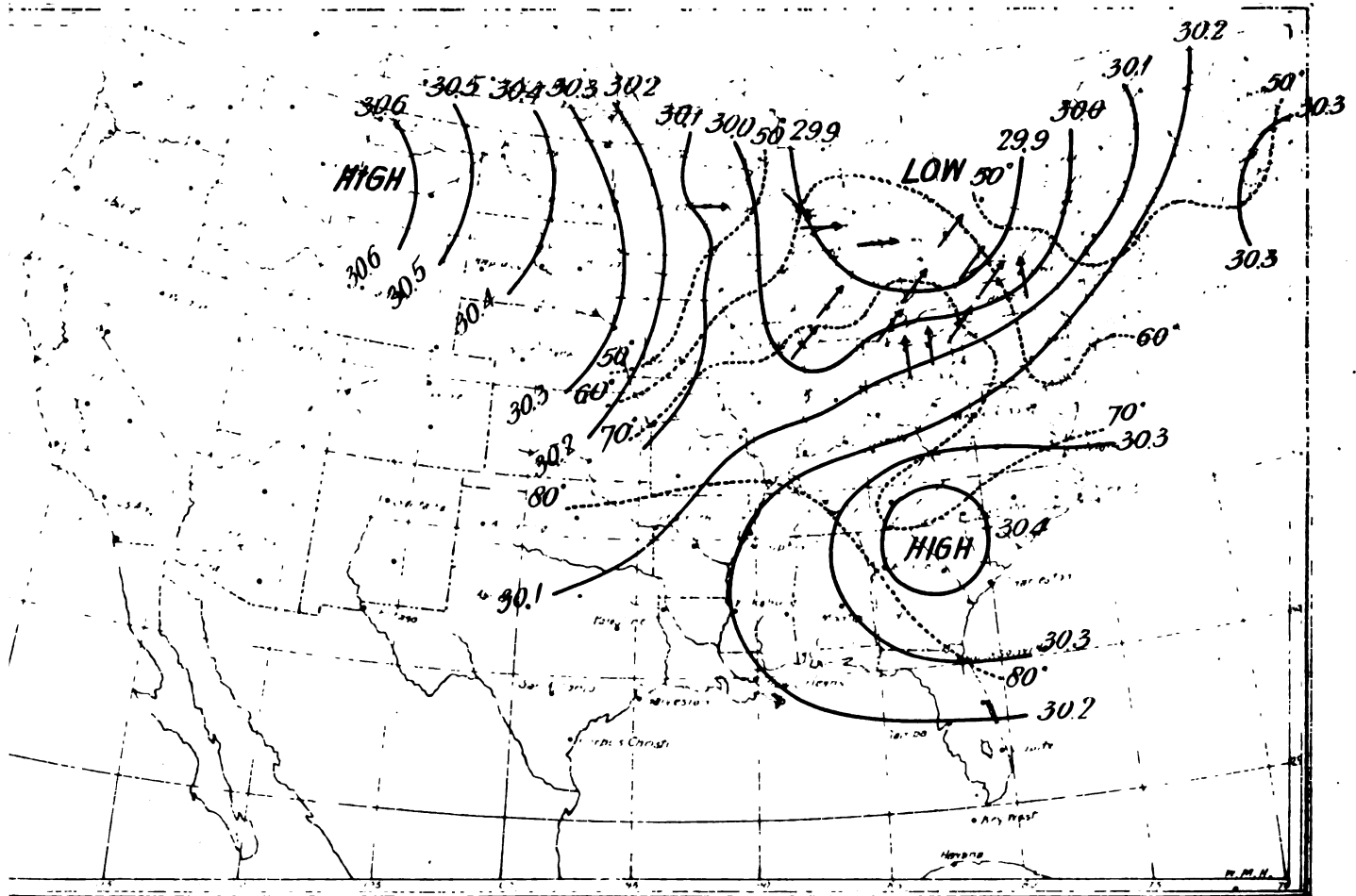
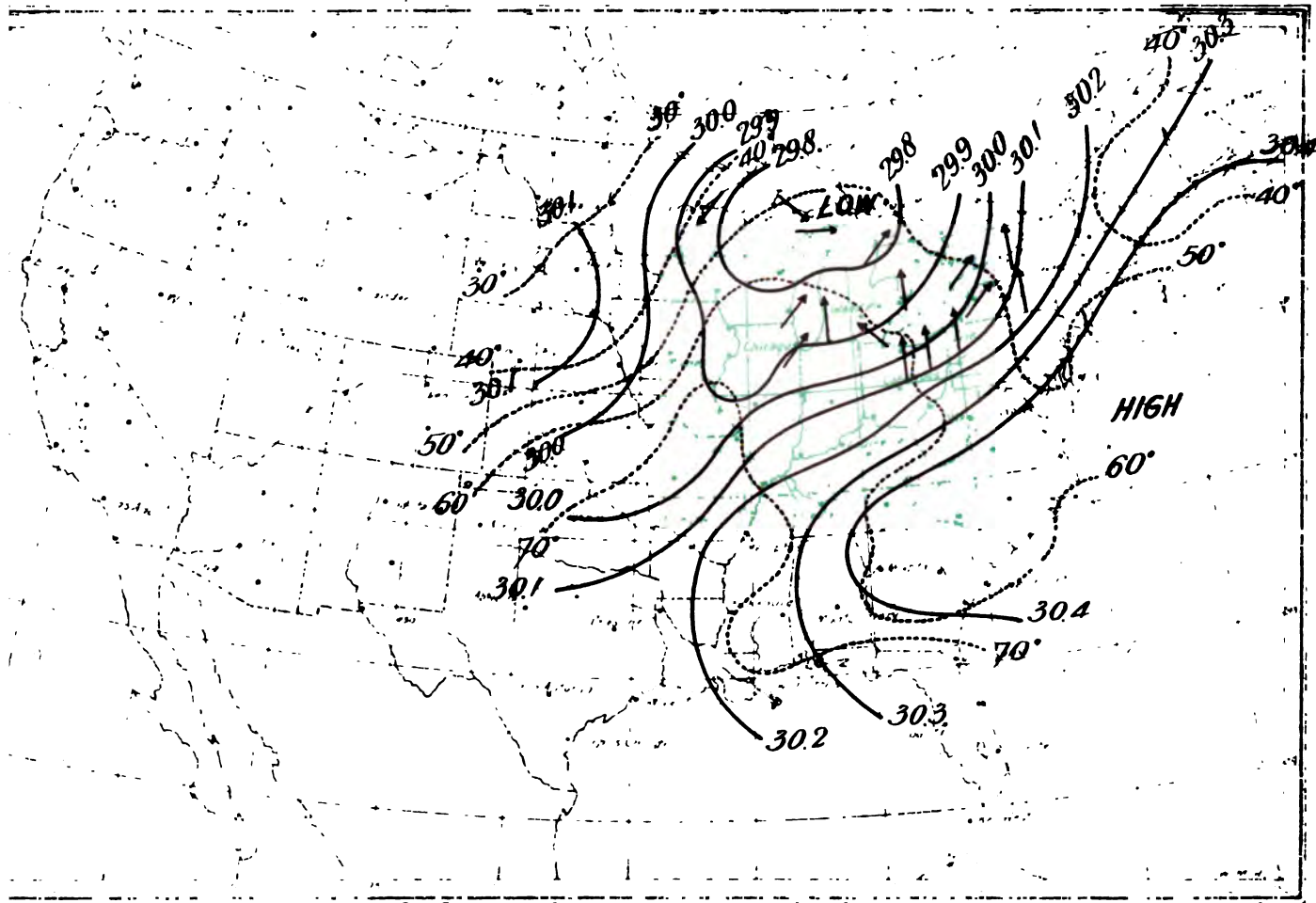


Chart DLXI

October 14, 1881—7 a. m.

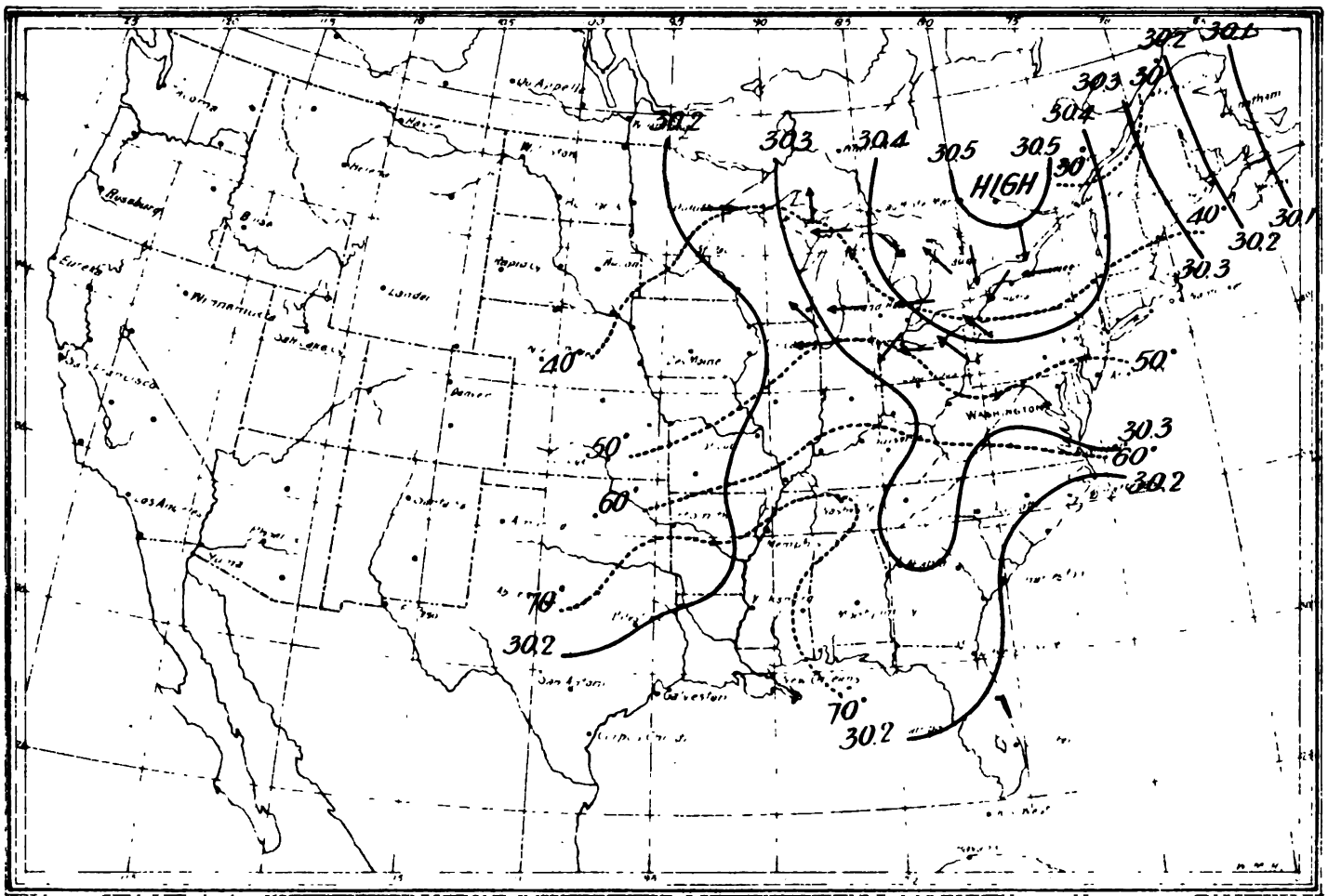
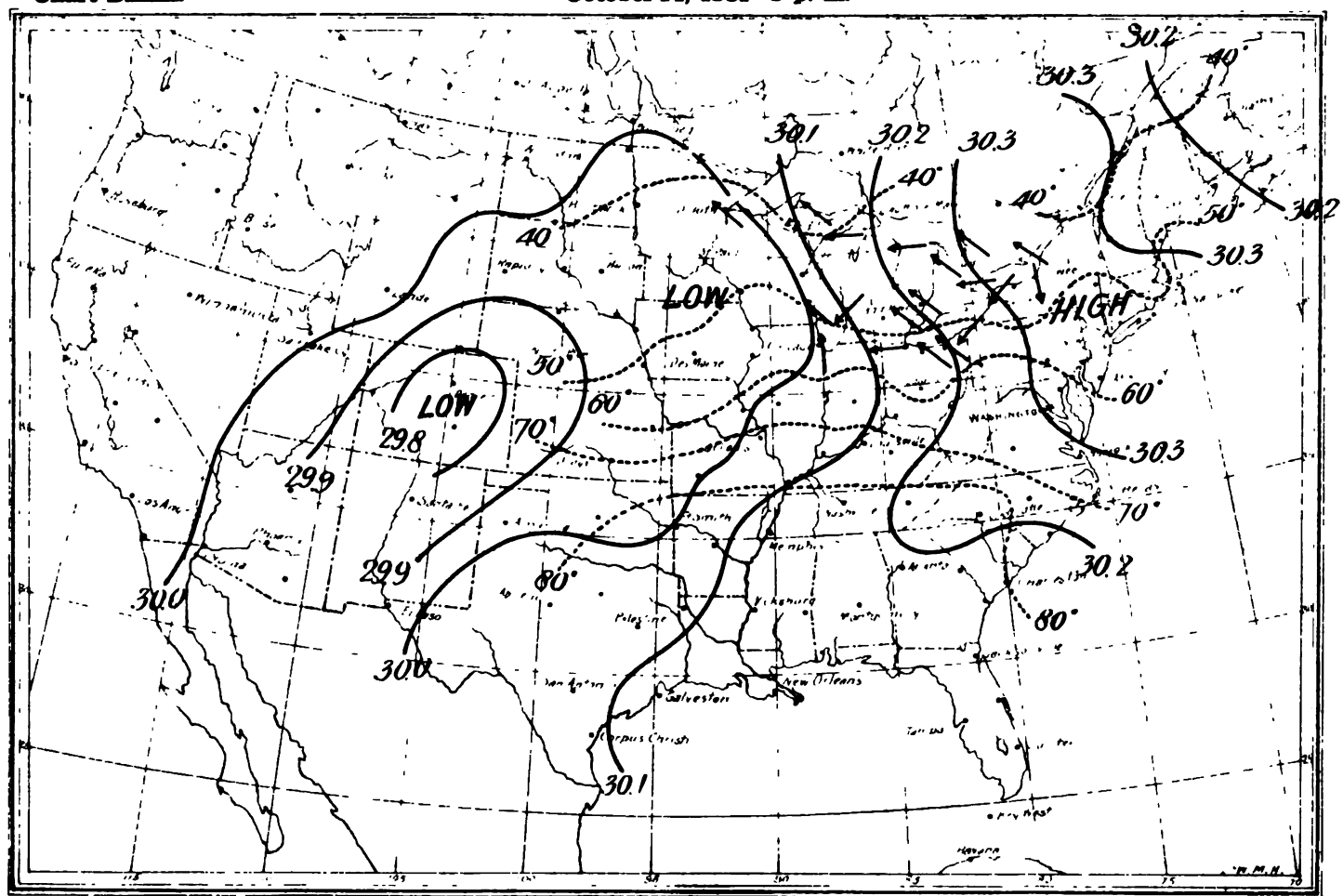
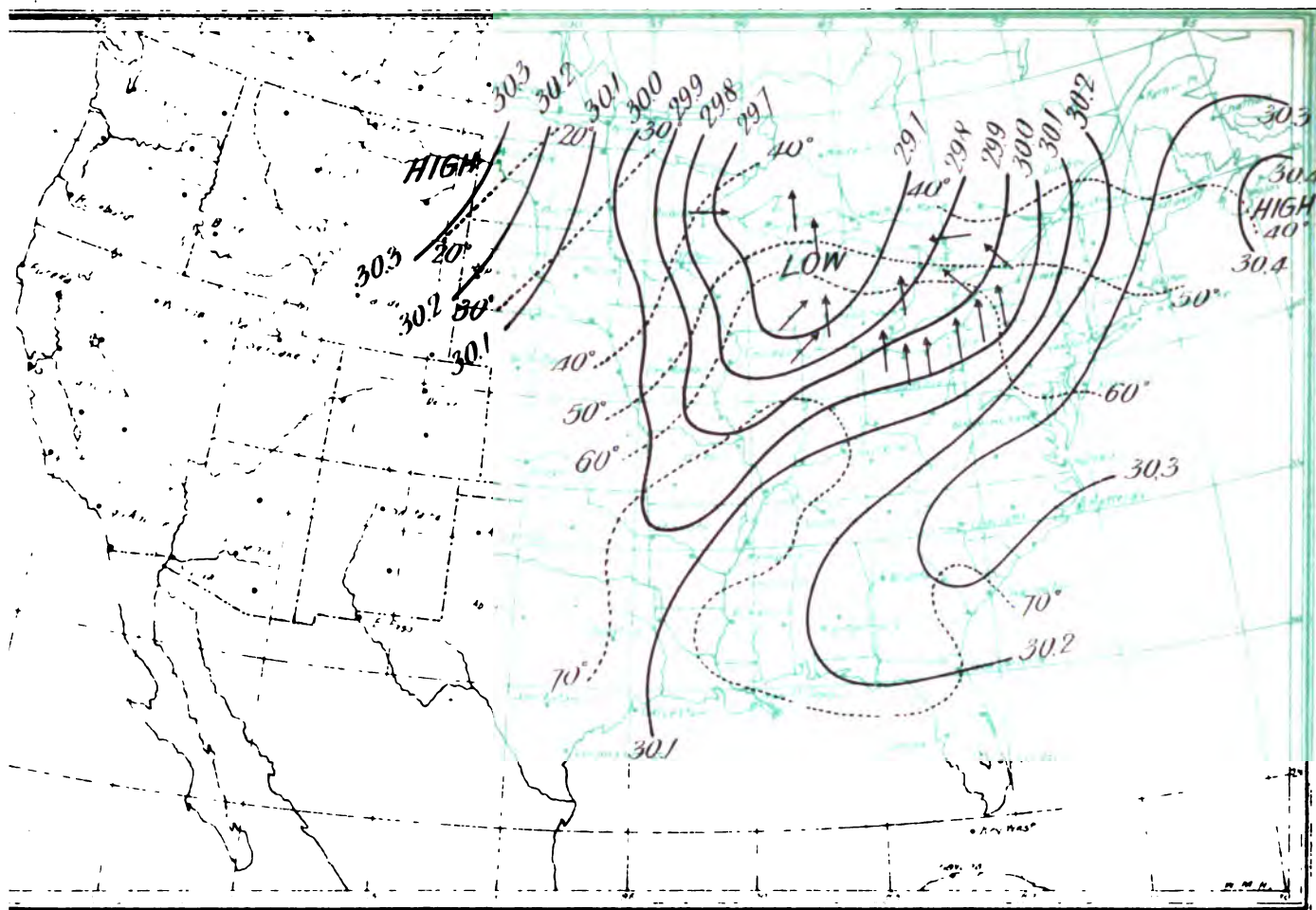


Chart DLXII

October 14, 1881—3 p. m.



October 15, 1881—7 a. m.



October 15, 1881—3 p. m.

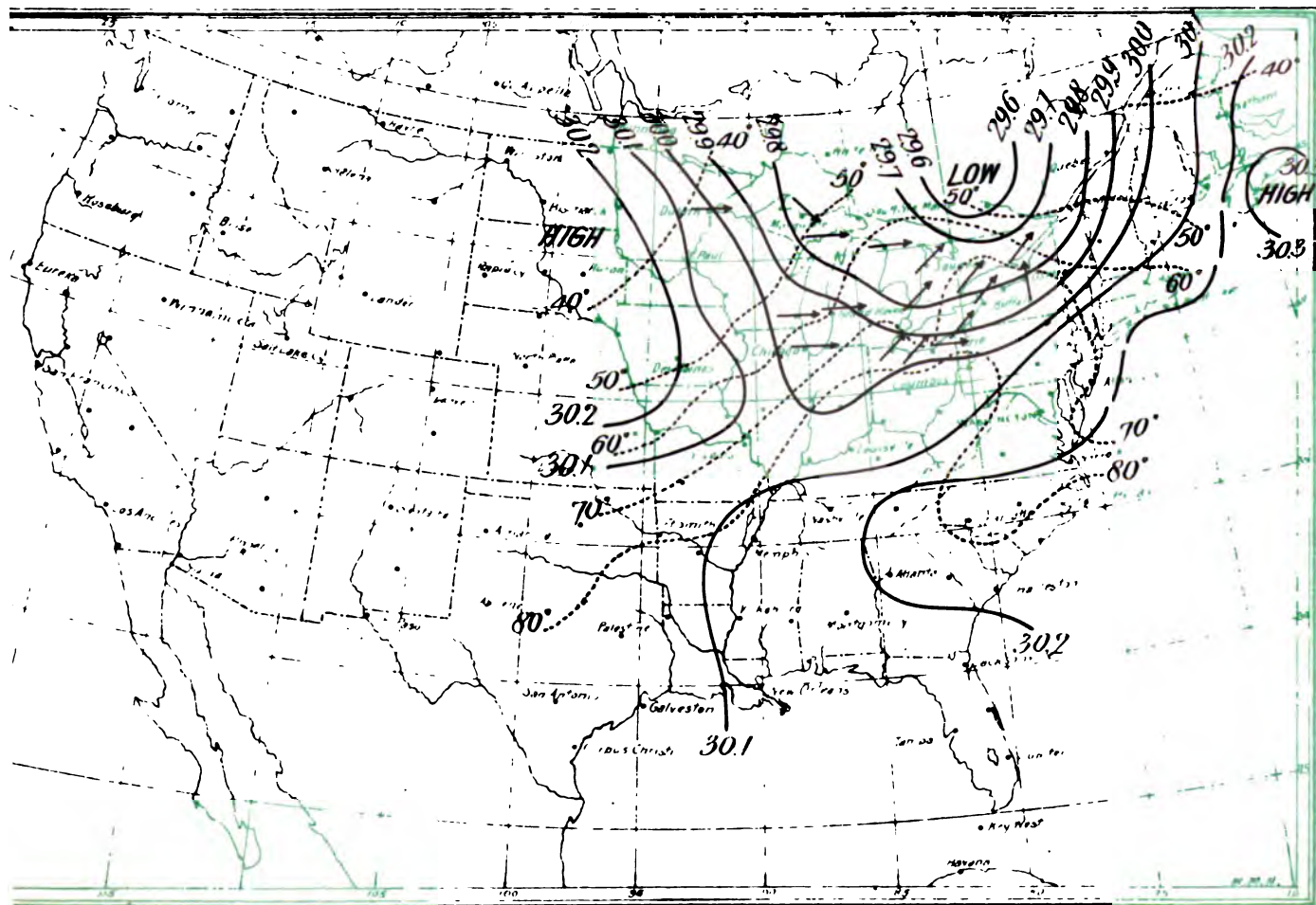


Chart DLXV.

October 8, 1882—7 a. m.

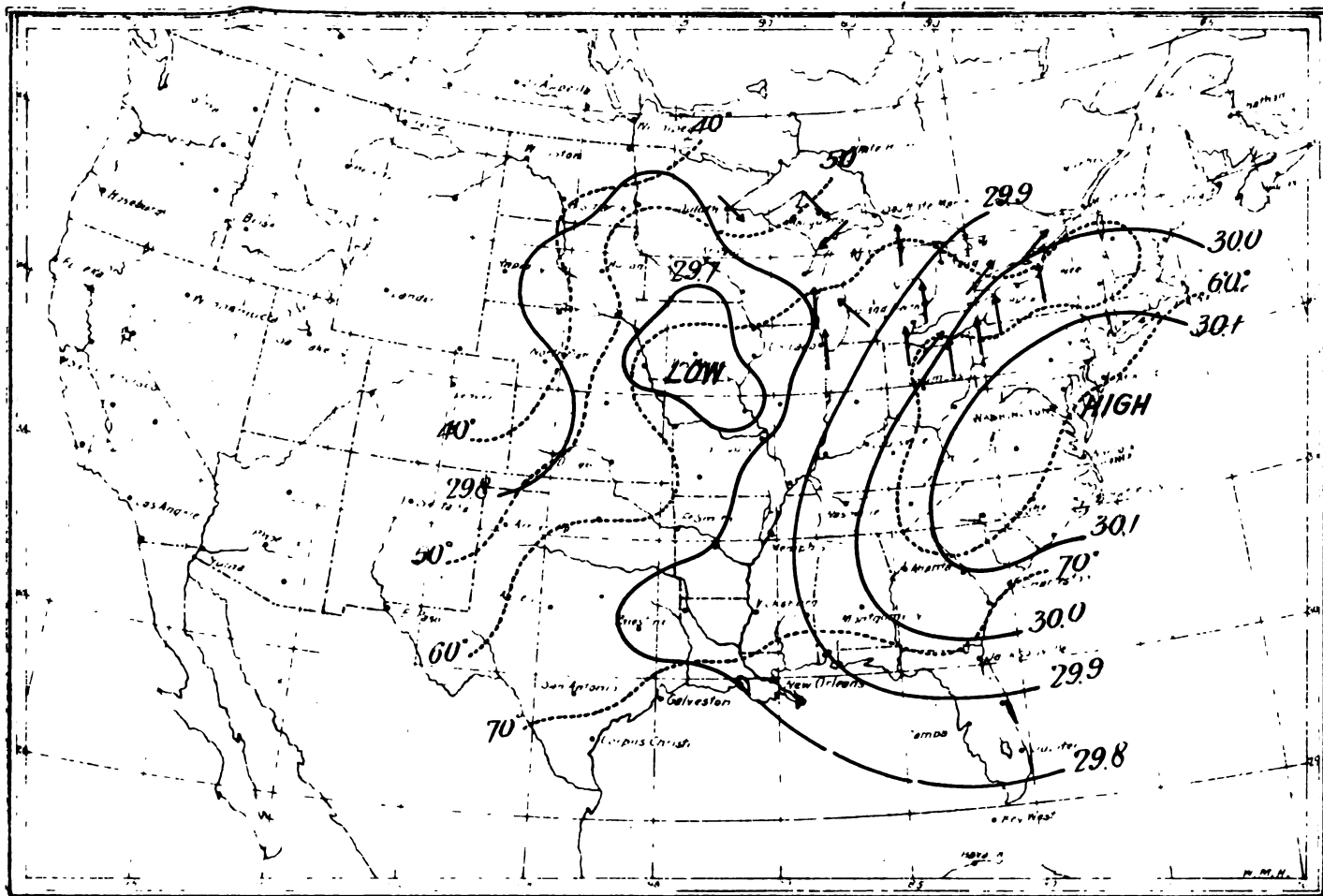


Chart DLXVI.

October 8, 1882—3 p. m.

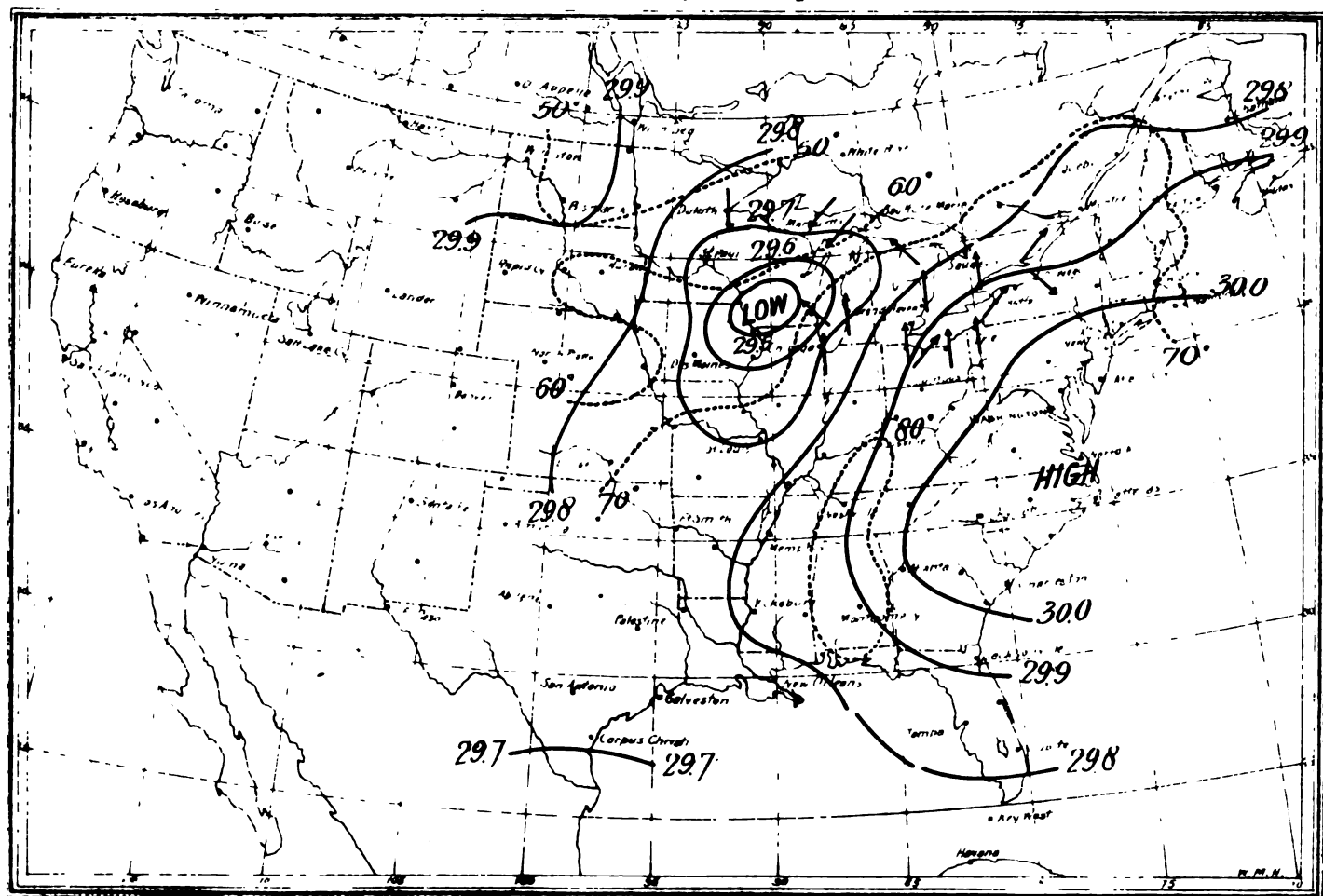


Chart DLXVII

October 9, 1882—7 a. m.

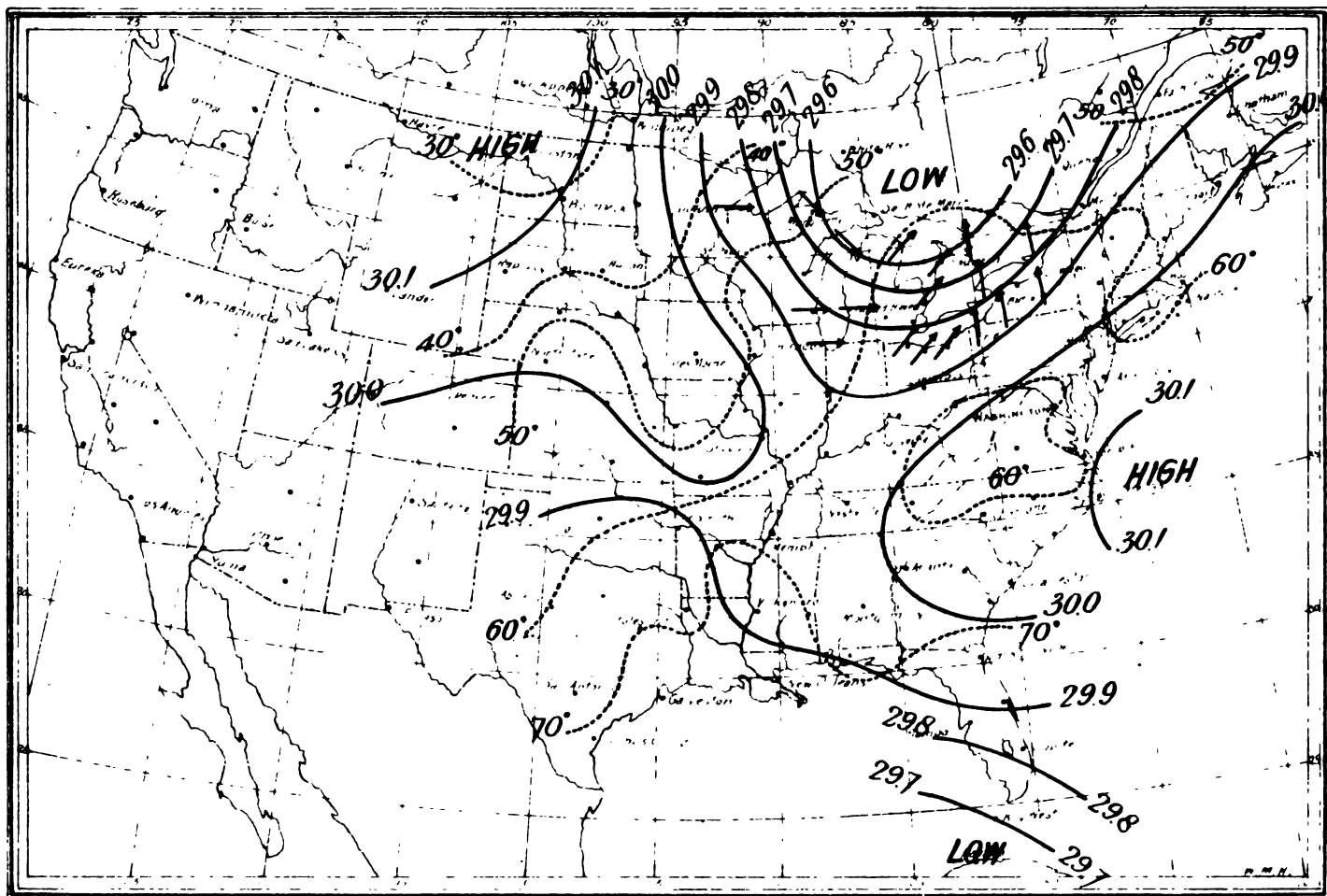


Chart DLXVIII.

October 9, 1882—3 p. m.

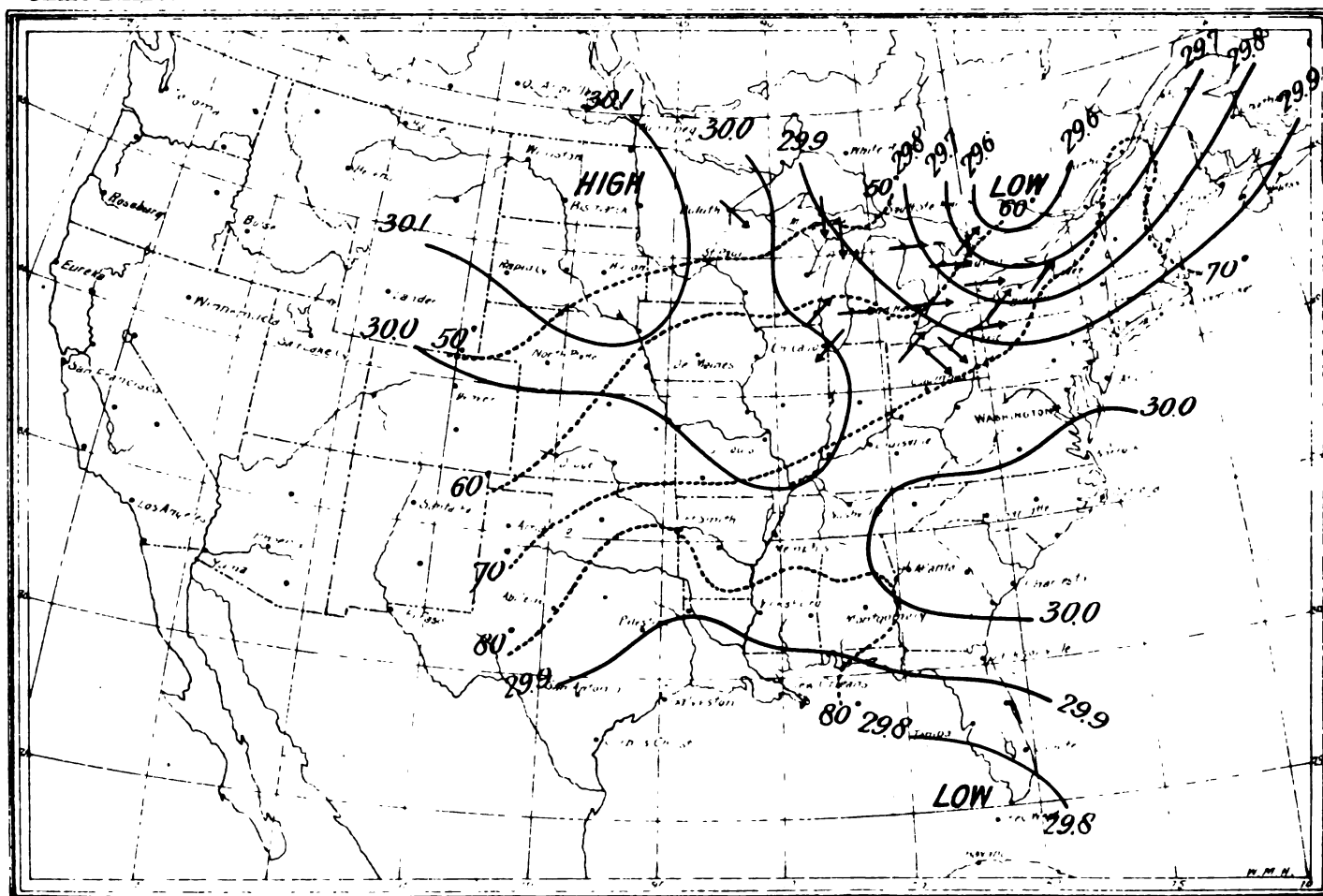


Chart DLXIX.

October 12, 1888—8 p. m.

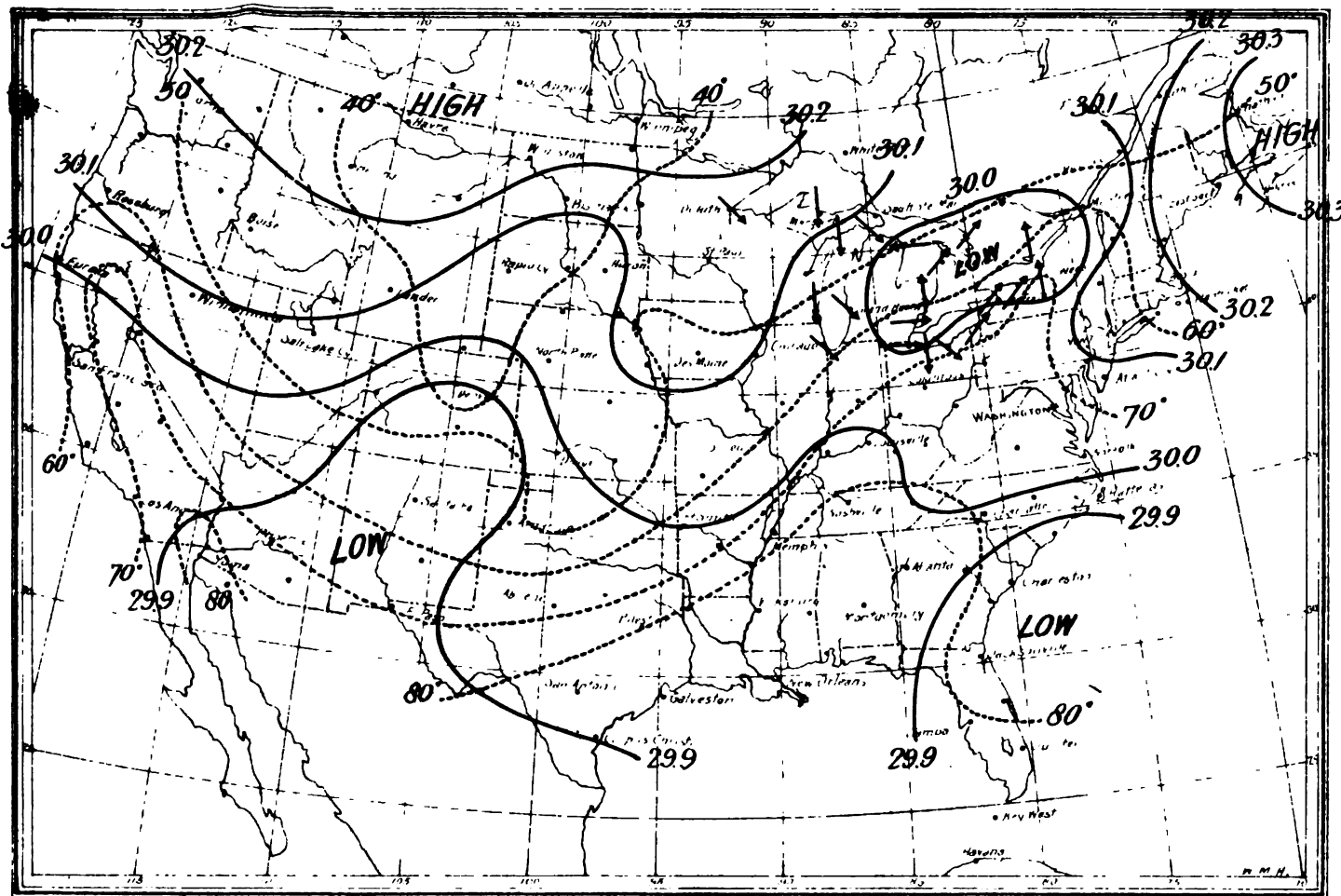


Chart DLXX.

October 13, 1888—7 a. m.

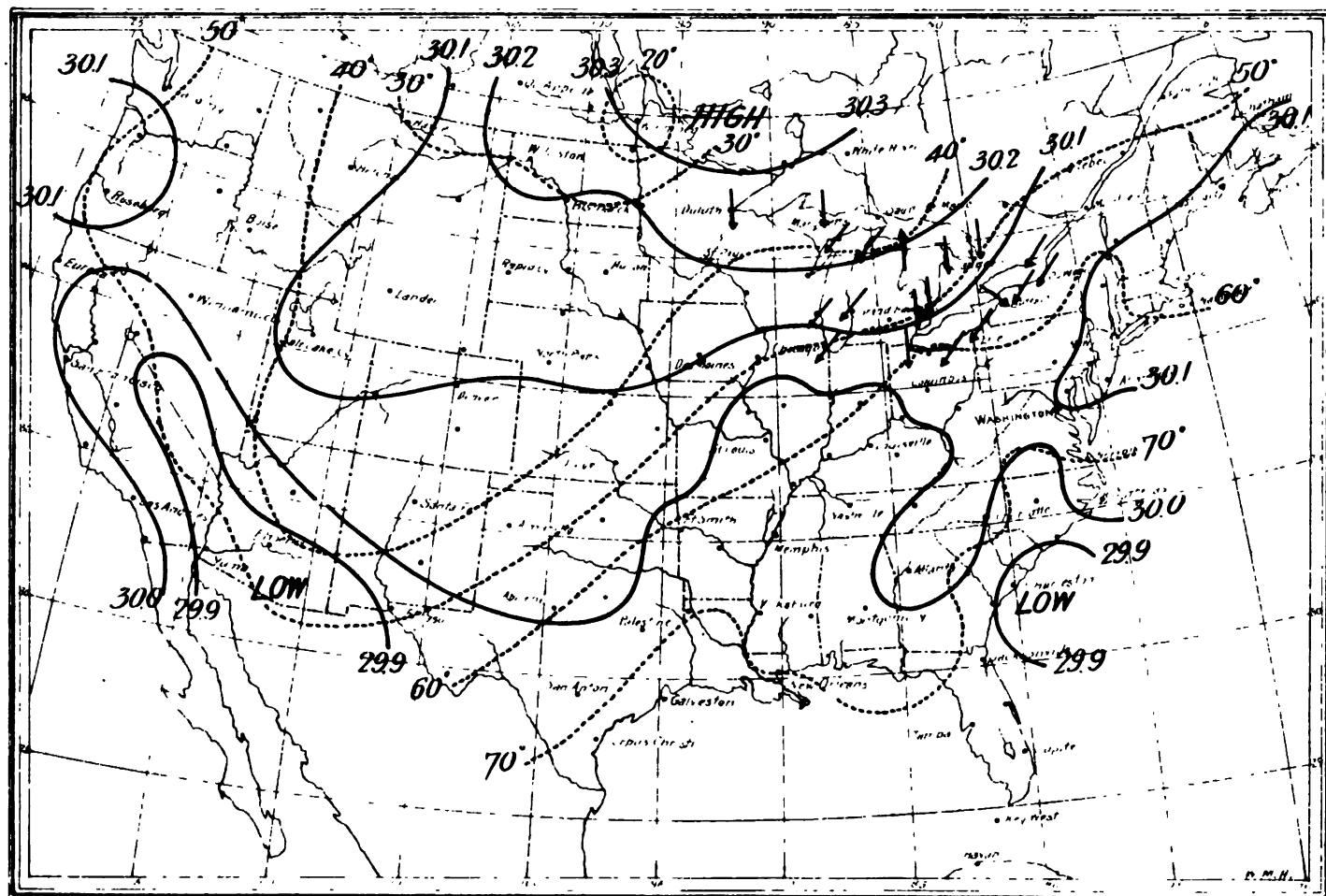


Chart DLXXI.

October 13, 1883—3 p. m.

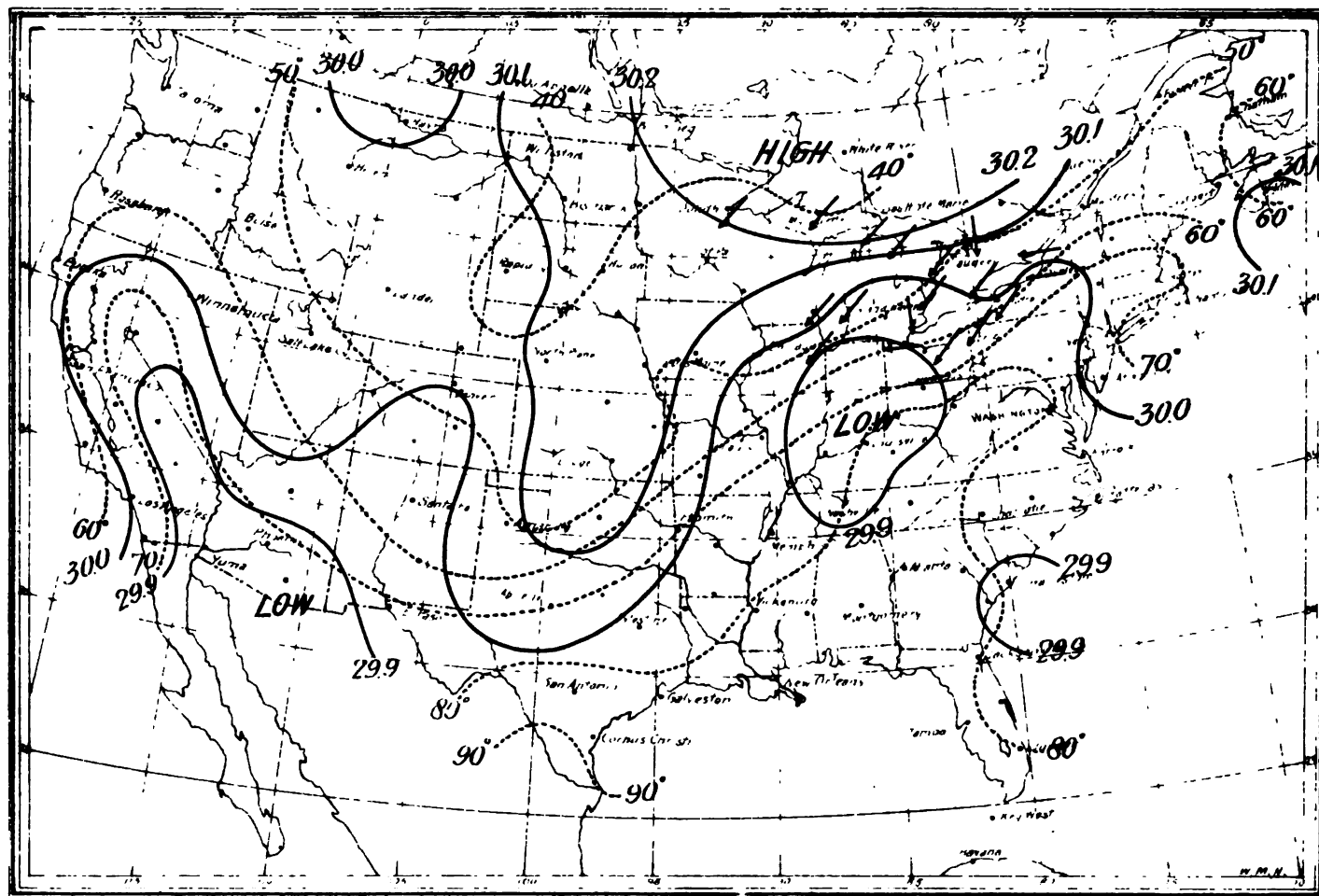


Chart DLXXII.

October 14, 1883—7 a. m.

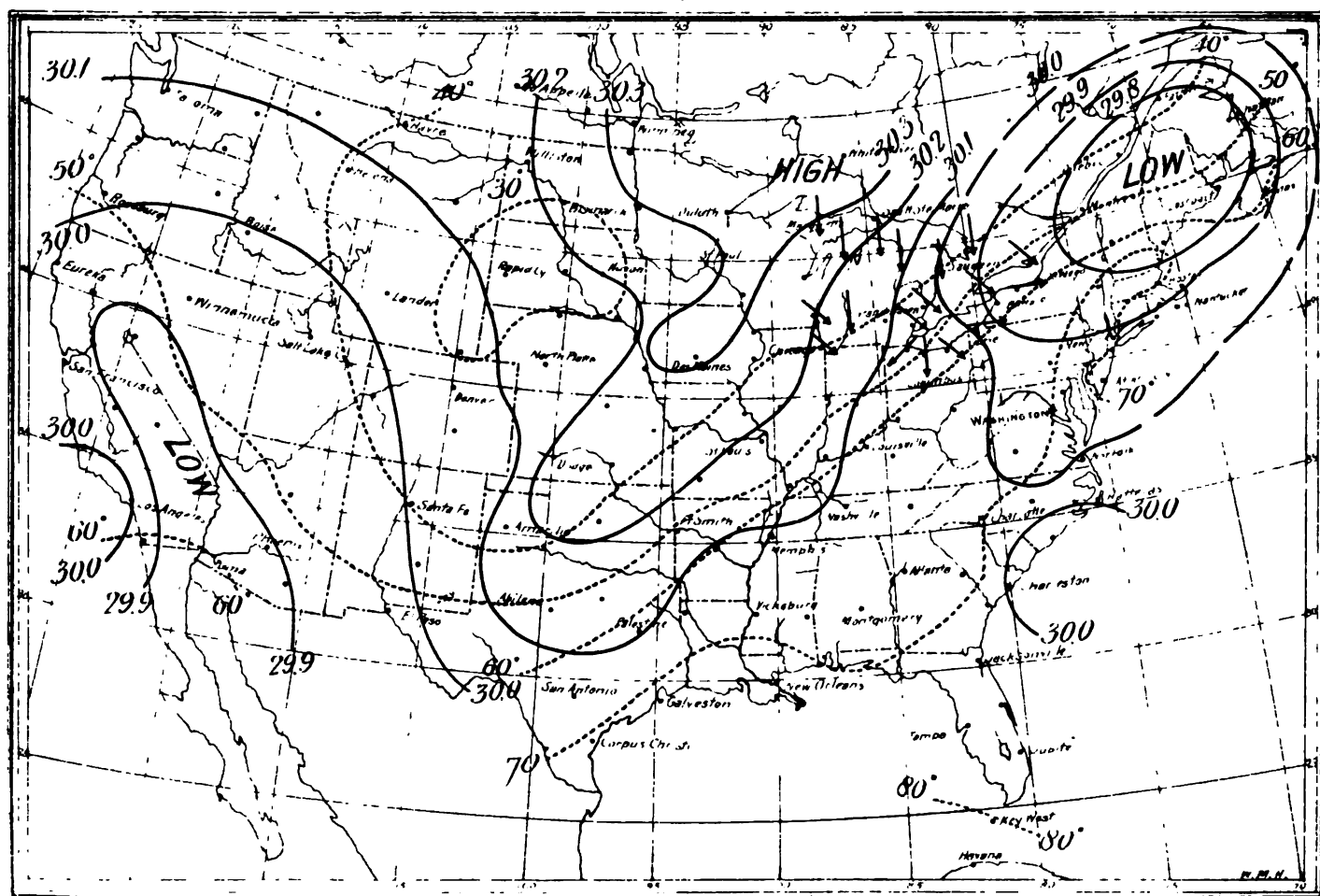


Chart DLXXIII.

October 28, 1883—7 a. m.

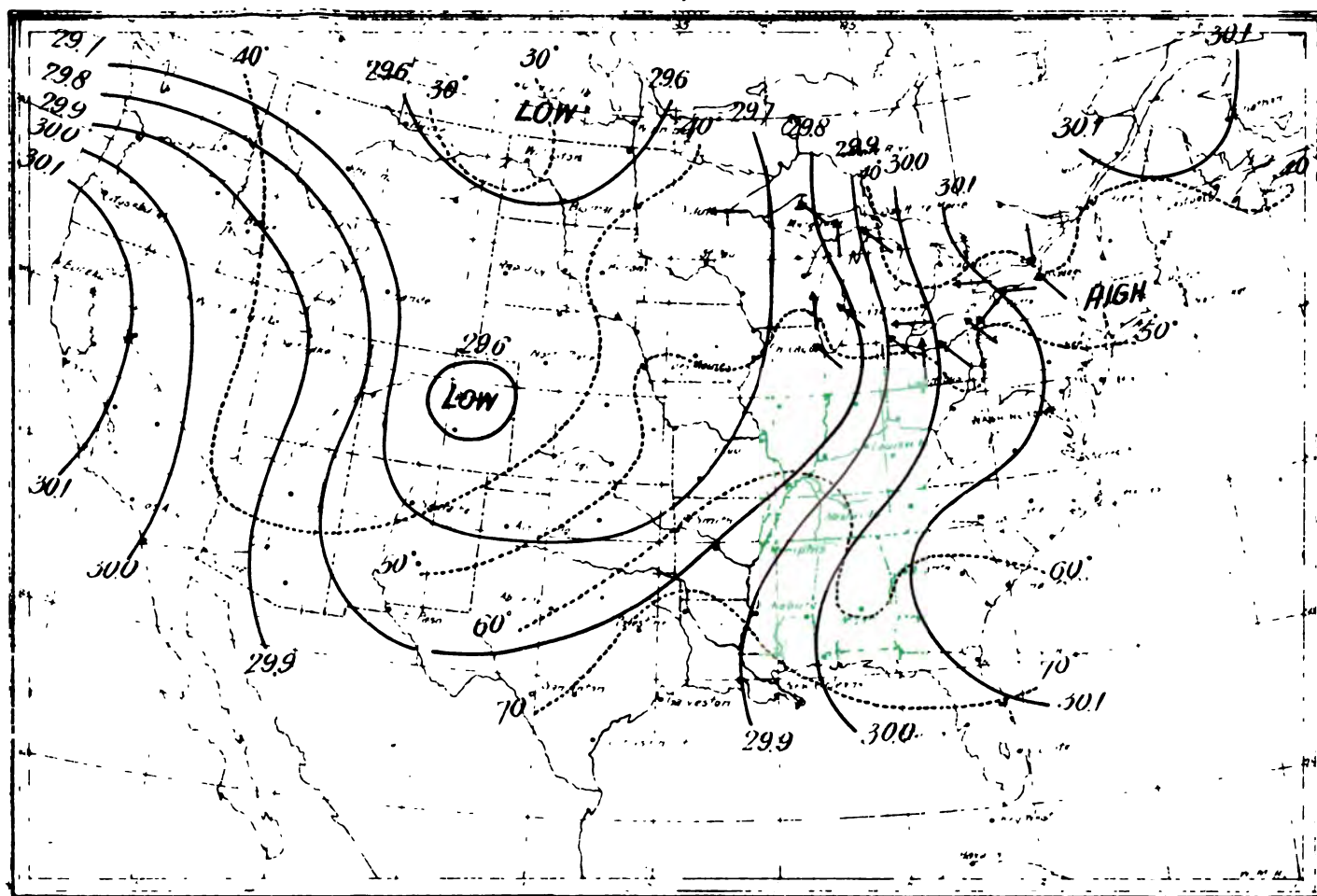
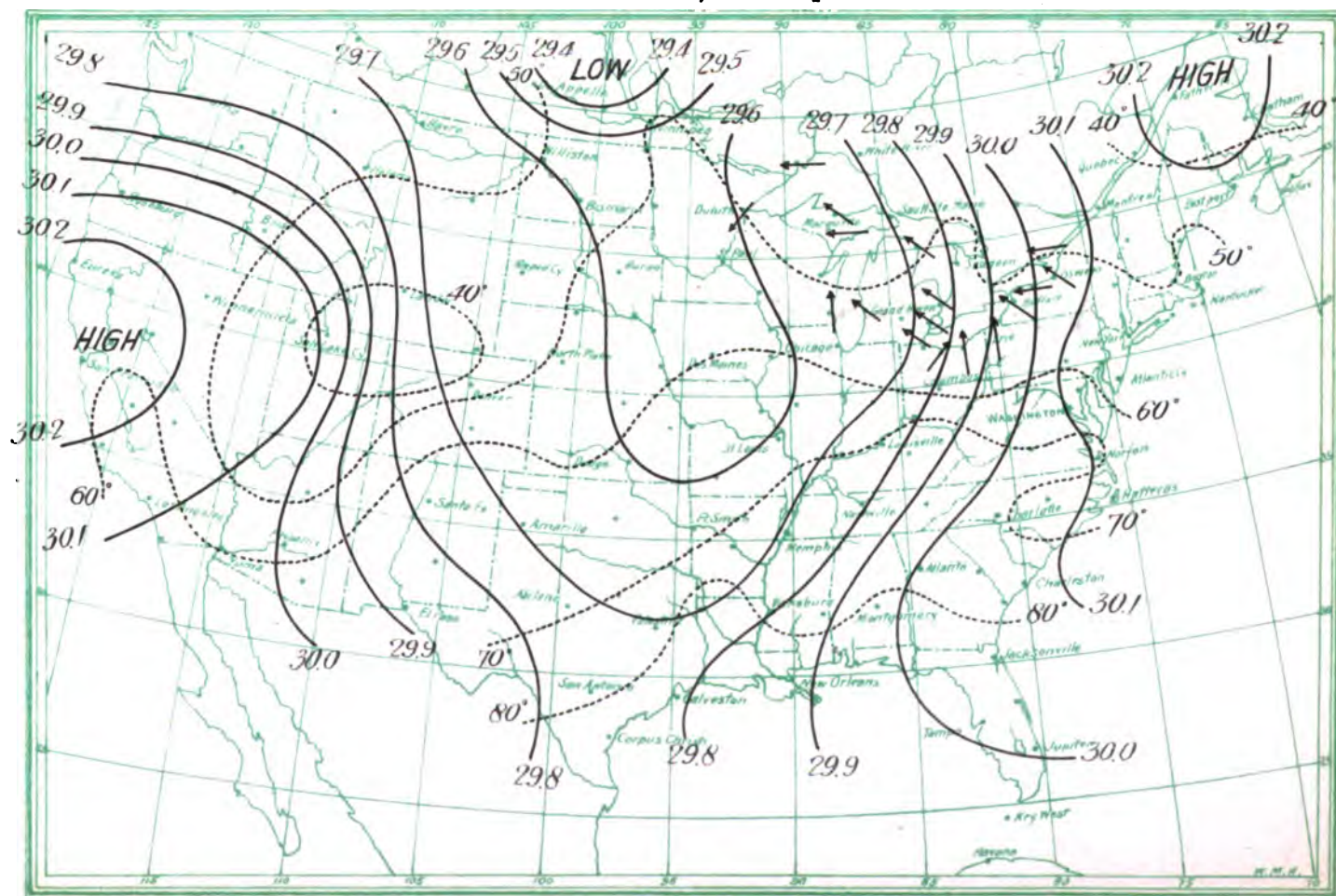


Chart DLXXIV.

October 28, 1883—3 p. m.



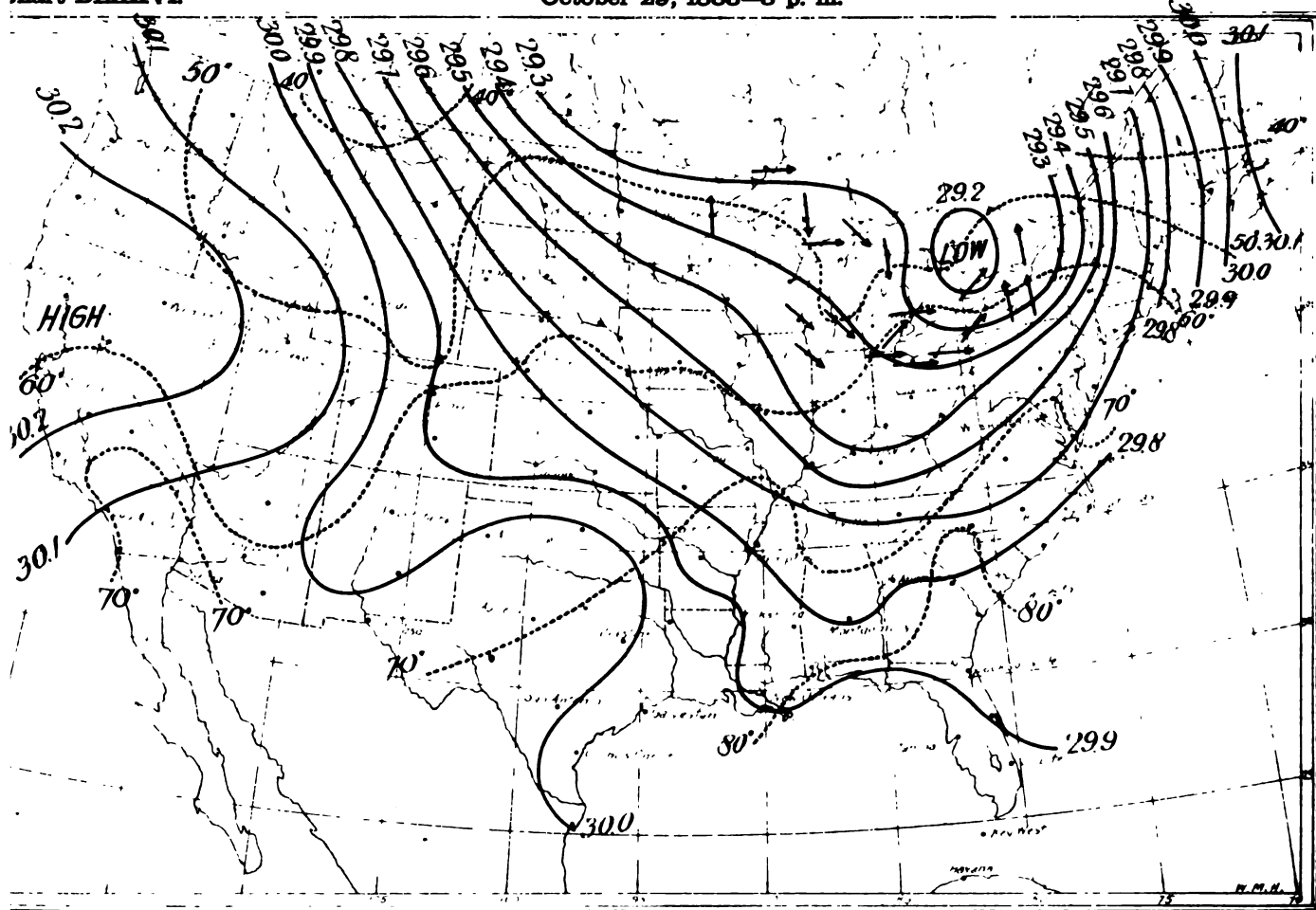
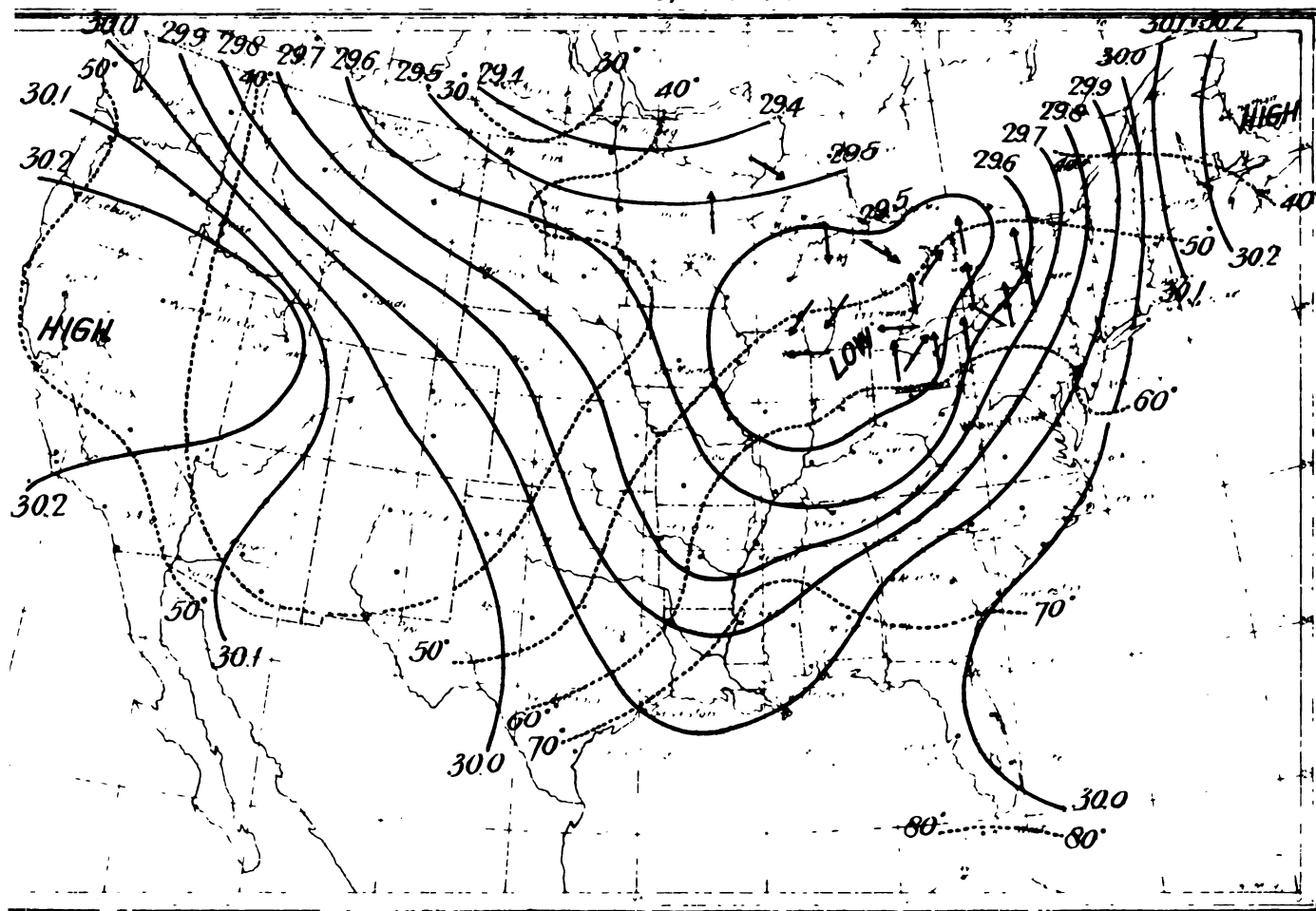


Chart DLXXVII.

October 7, 1884—7 a. m.

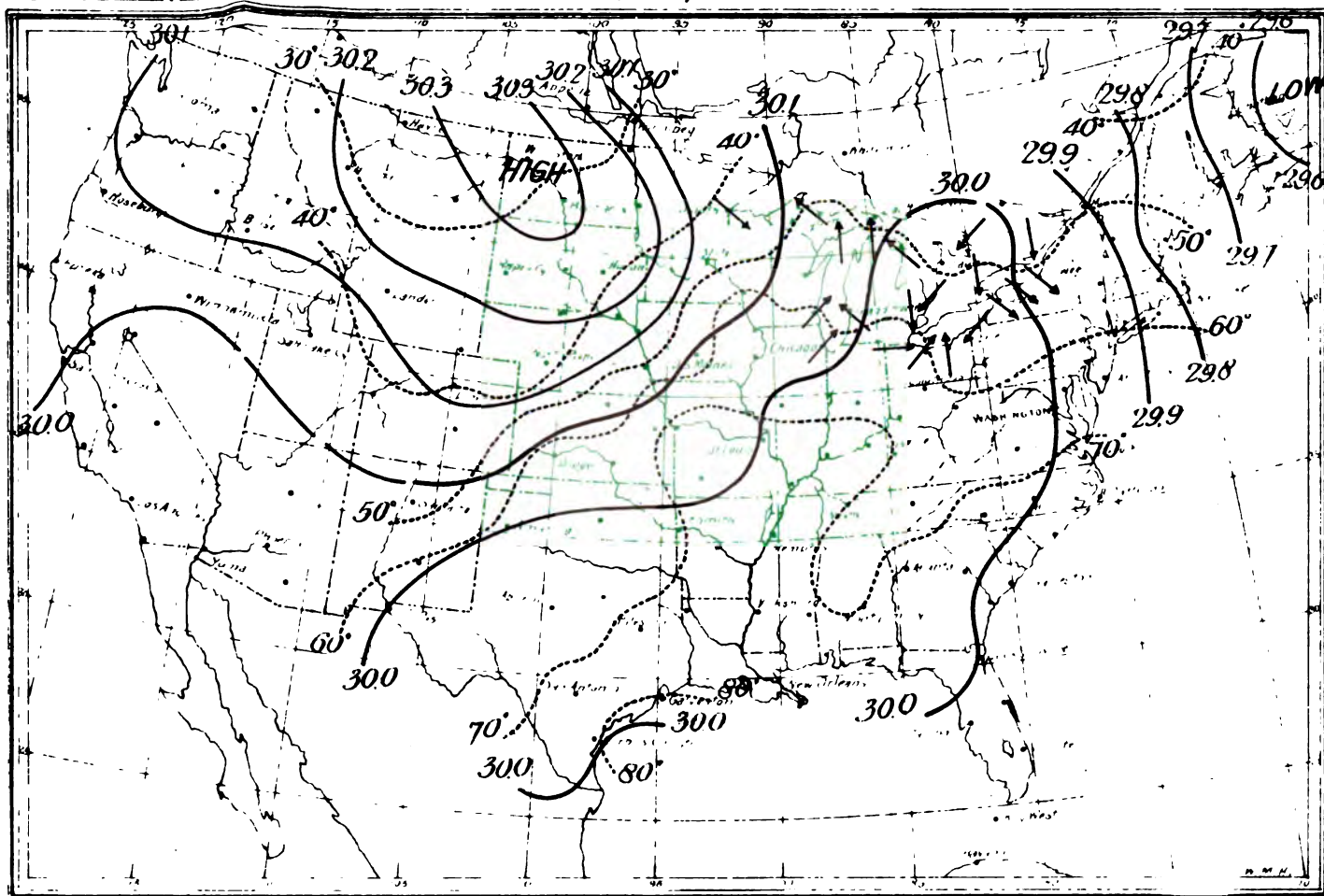
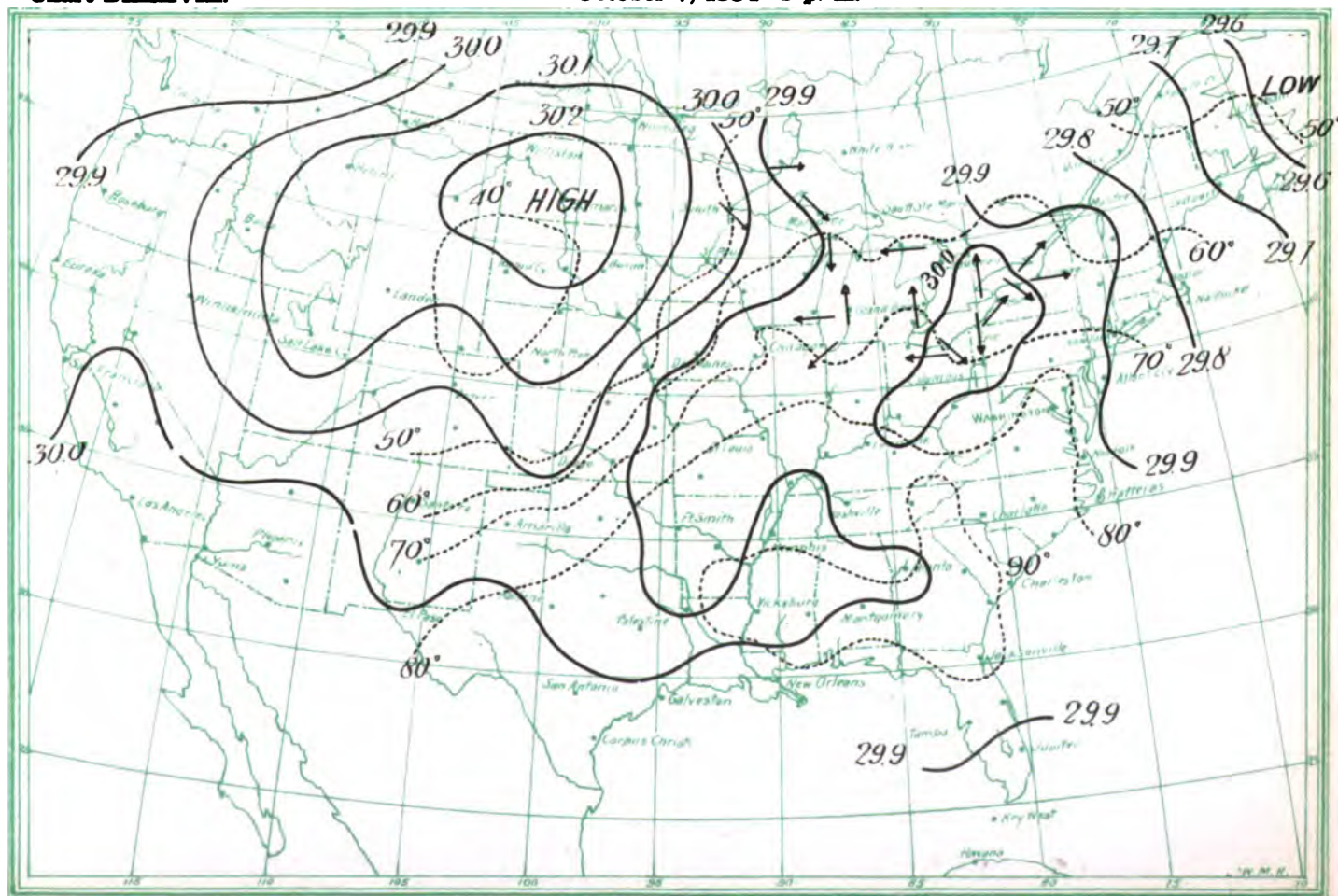
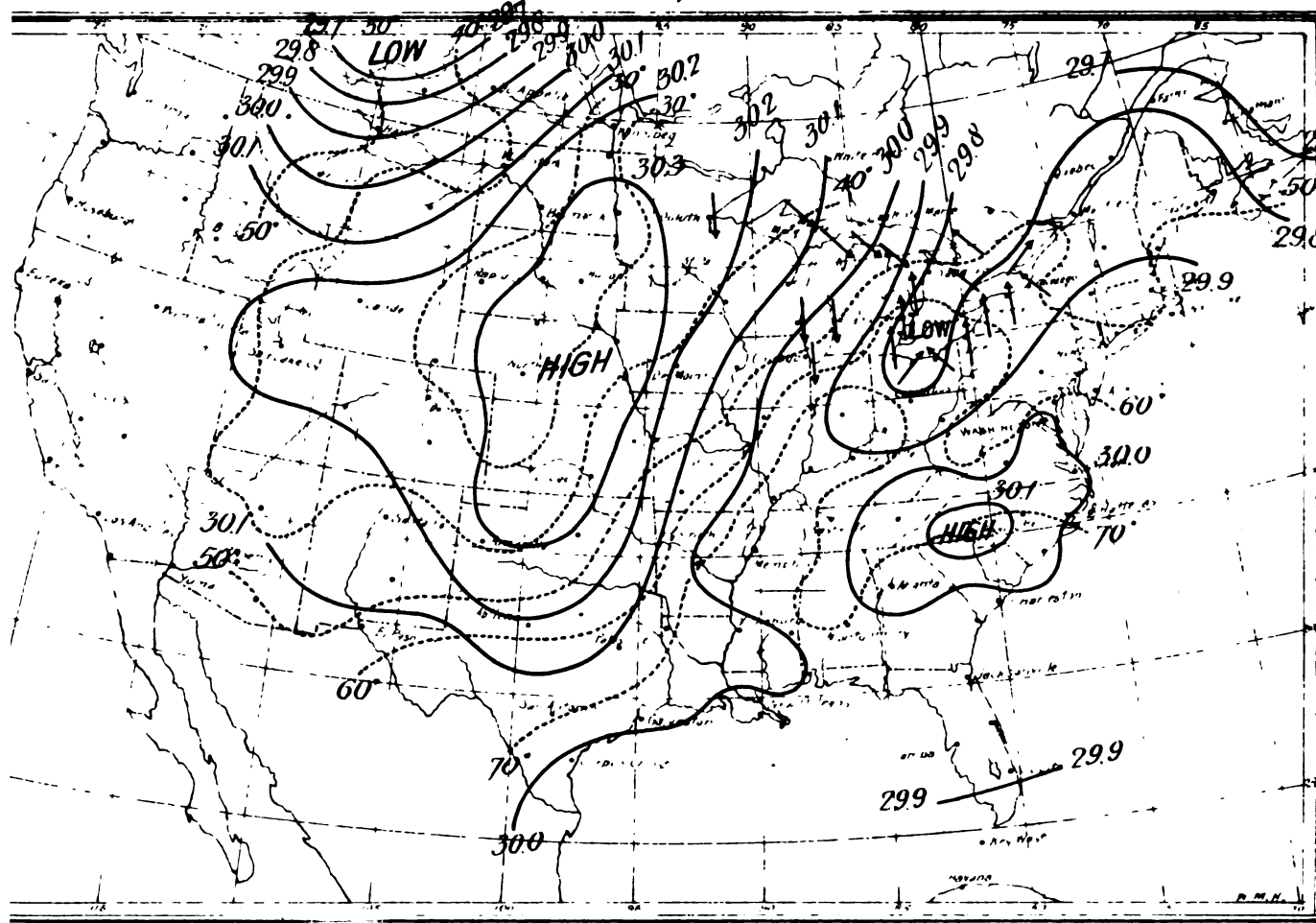


Chart DLXXVIII.

October 7, 1884—3 p. m.



October 8, 1884—7 a. m.



October 8, 1884—3 p. m.

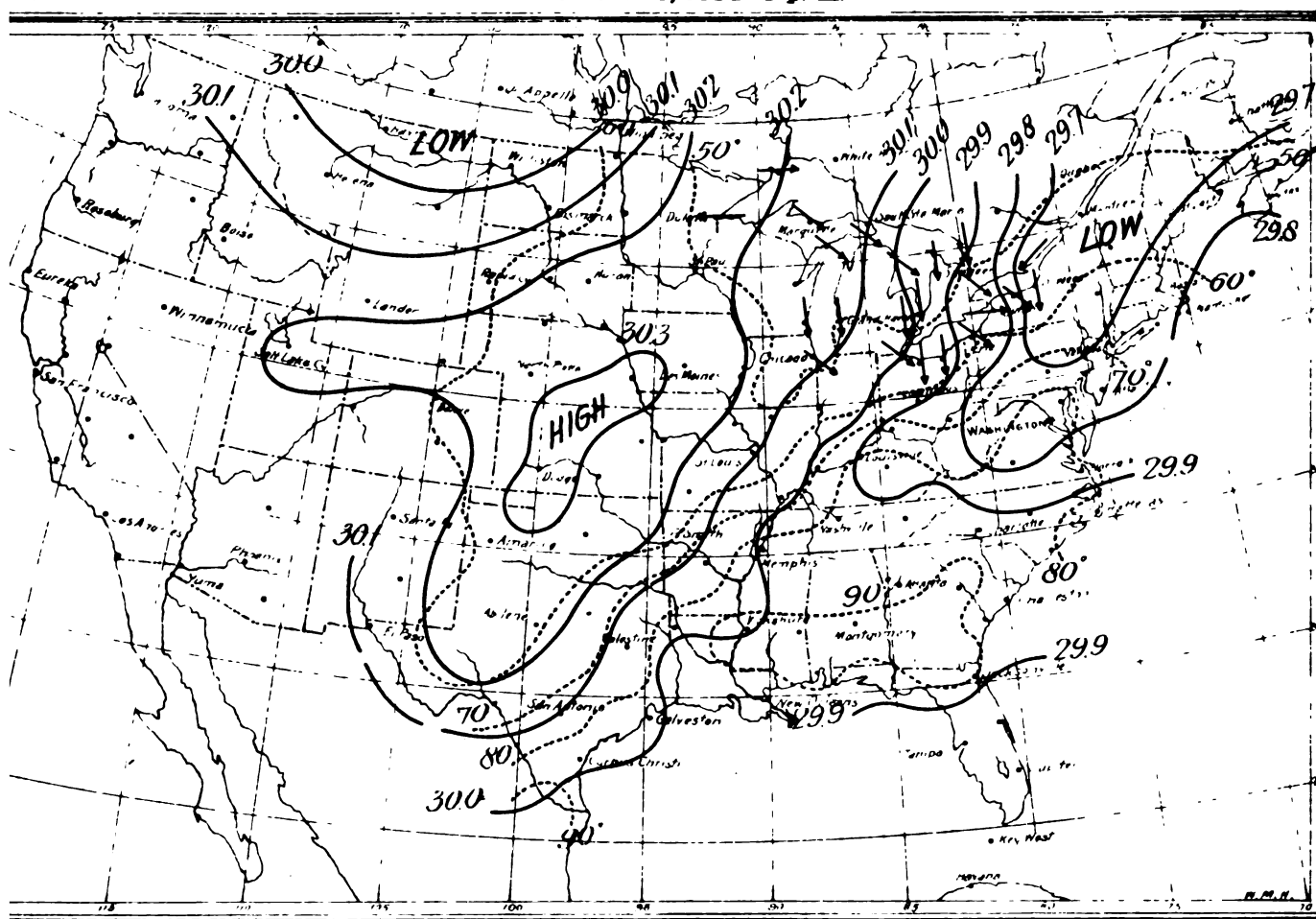


Chart DLXXXI.

October 20, 1884—7 a. m.

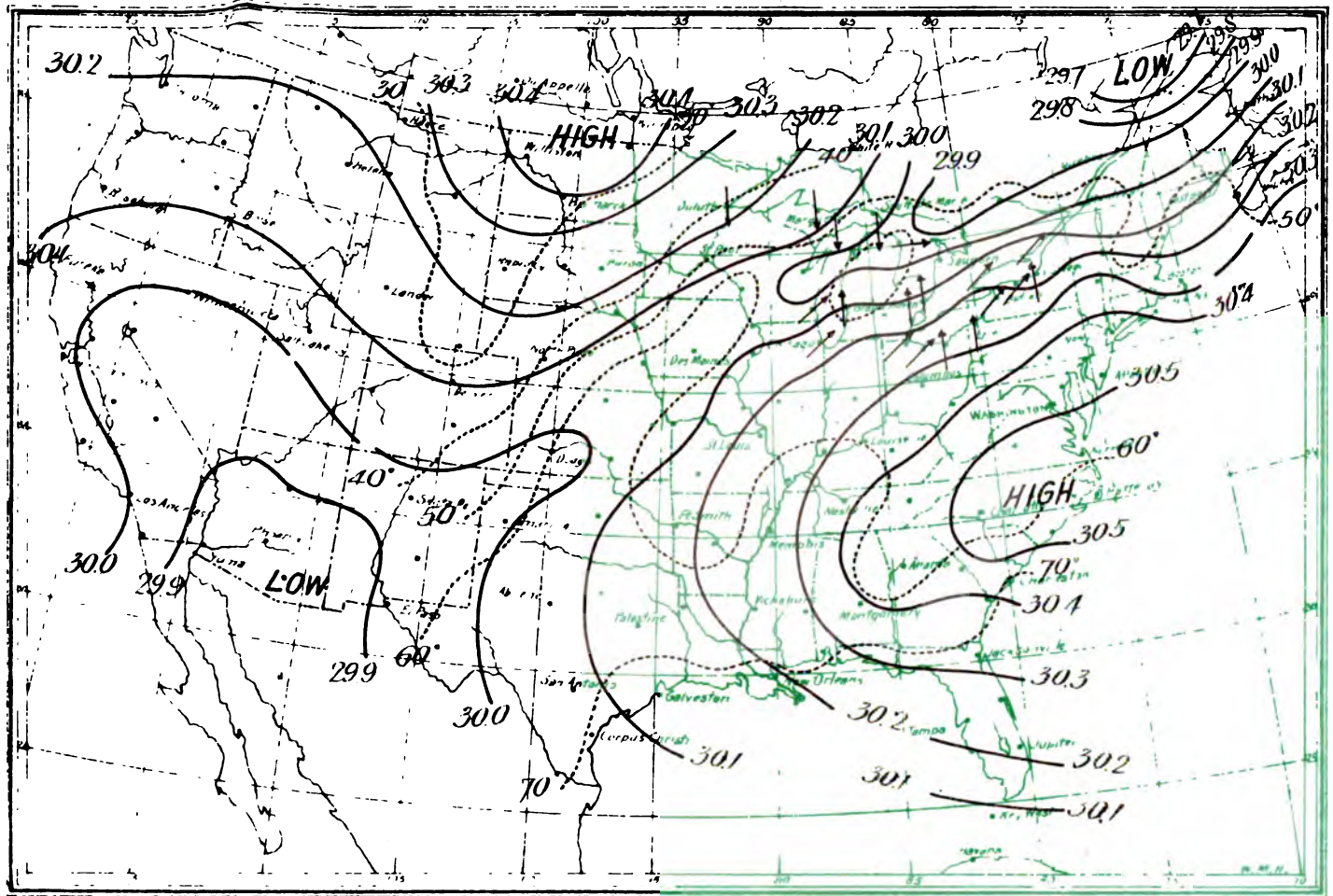


Chart DLXXXII.

October 20, 1884—3 p. m.

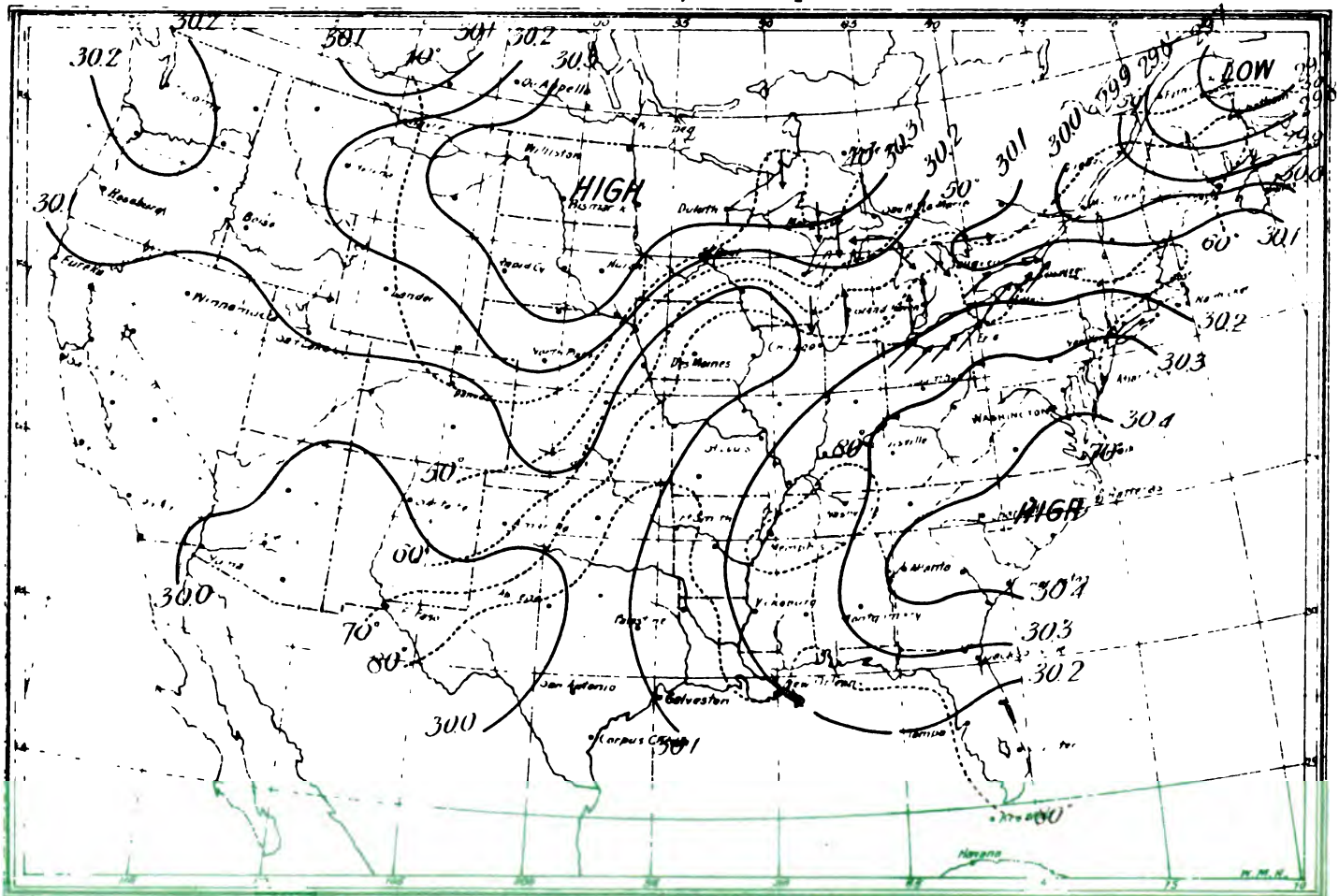


Chart DLXXXIII.

October 21, 1884—7 a. m.

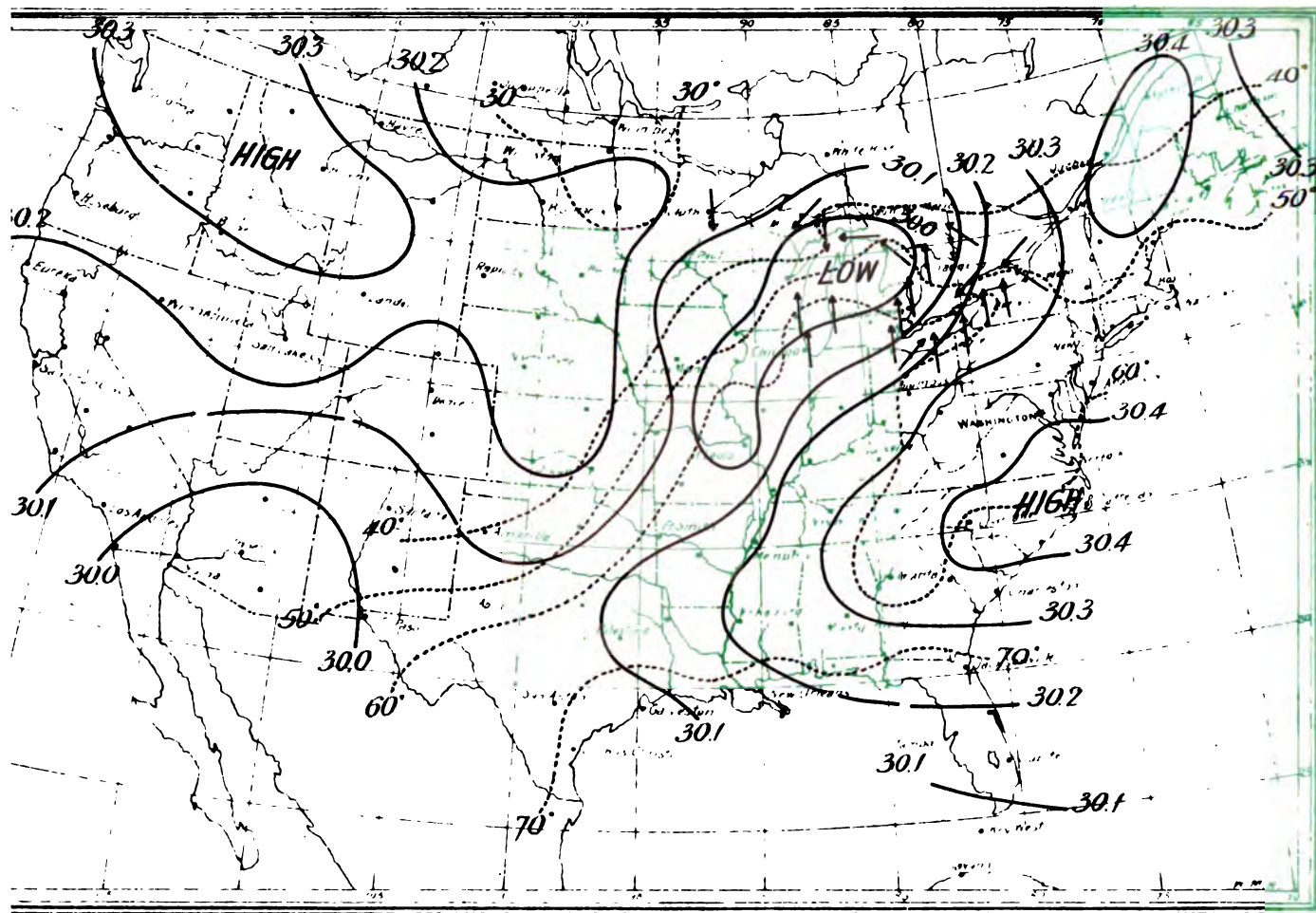


Chart DLXXXIV.

October 21, 1884—3 p. m.

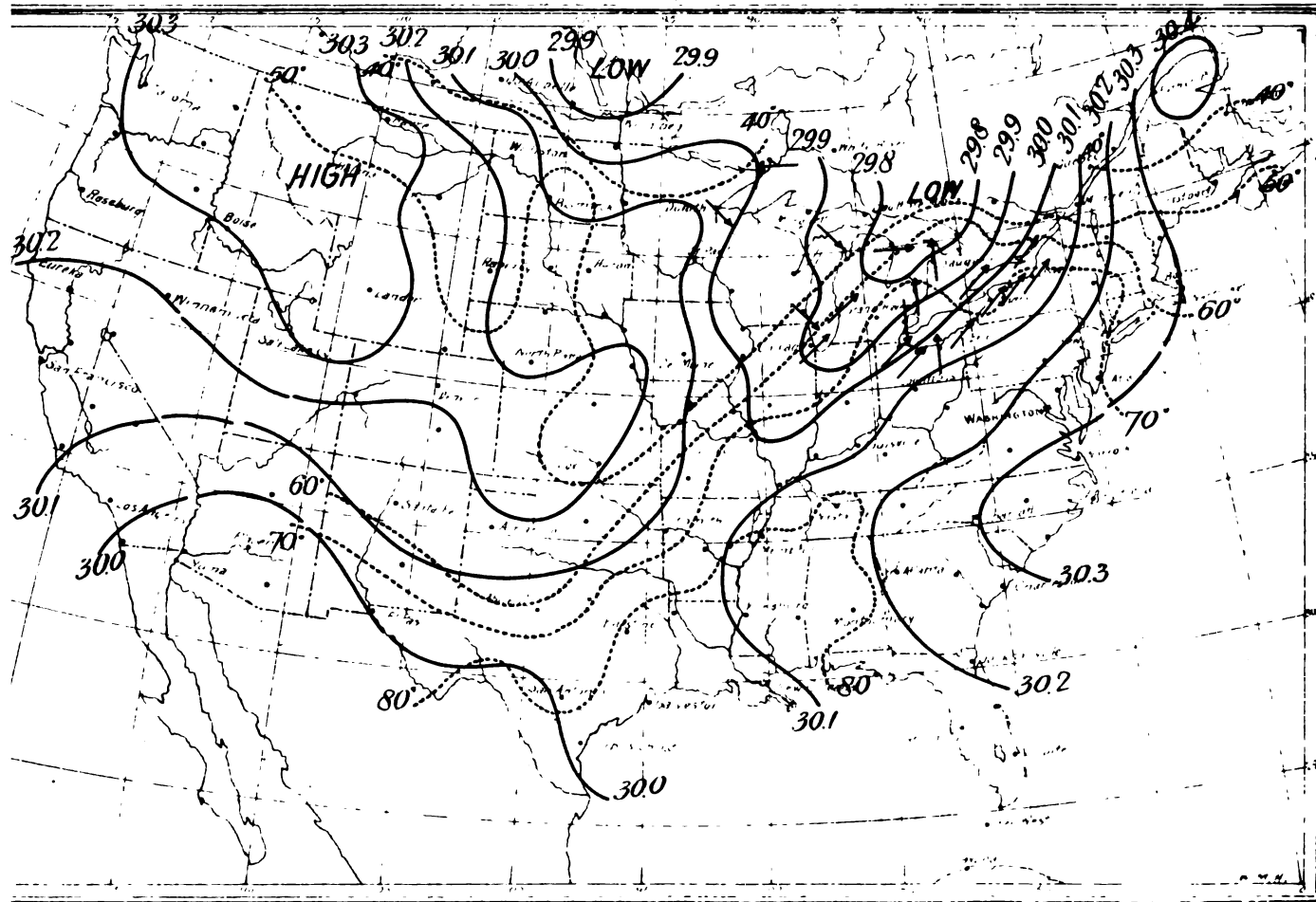


Chart DLXXXV.
October 23, 1884—8 p. m.

Chart DLXXXV.
October 23, 1884—8 p. m.

Chart DLXXXVII.

October 24, 1884—8 p. m.

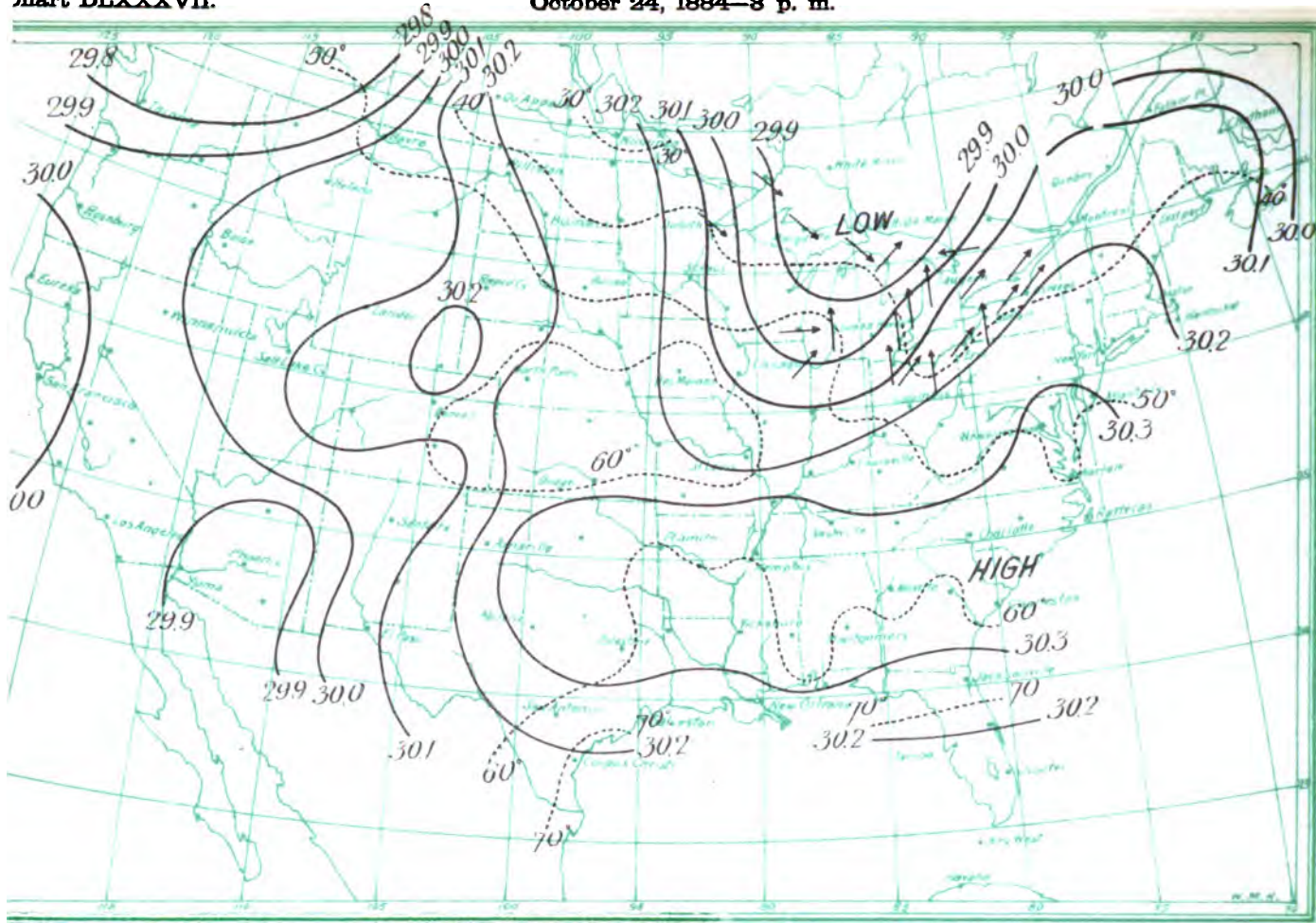


Chart DLXXXVIII.

October 25, 1884—7 a. m.

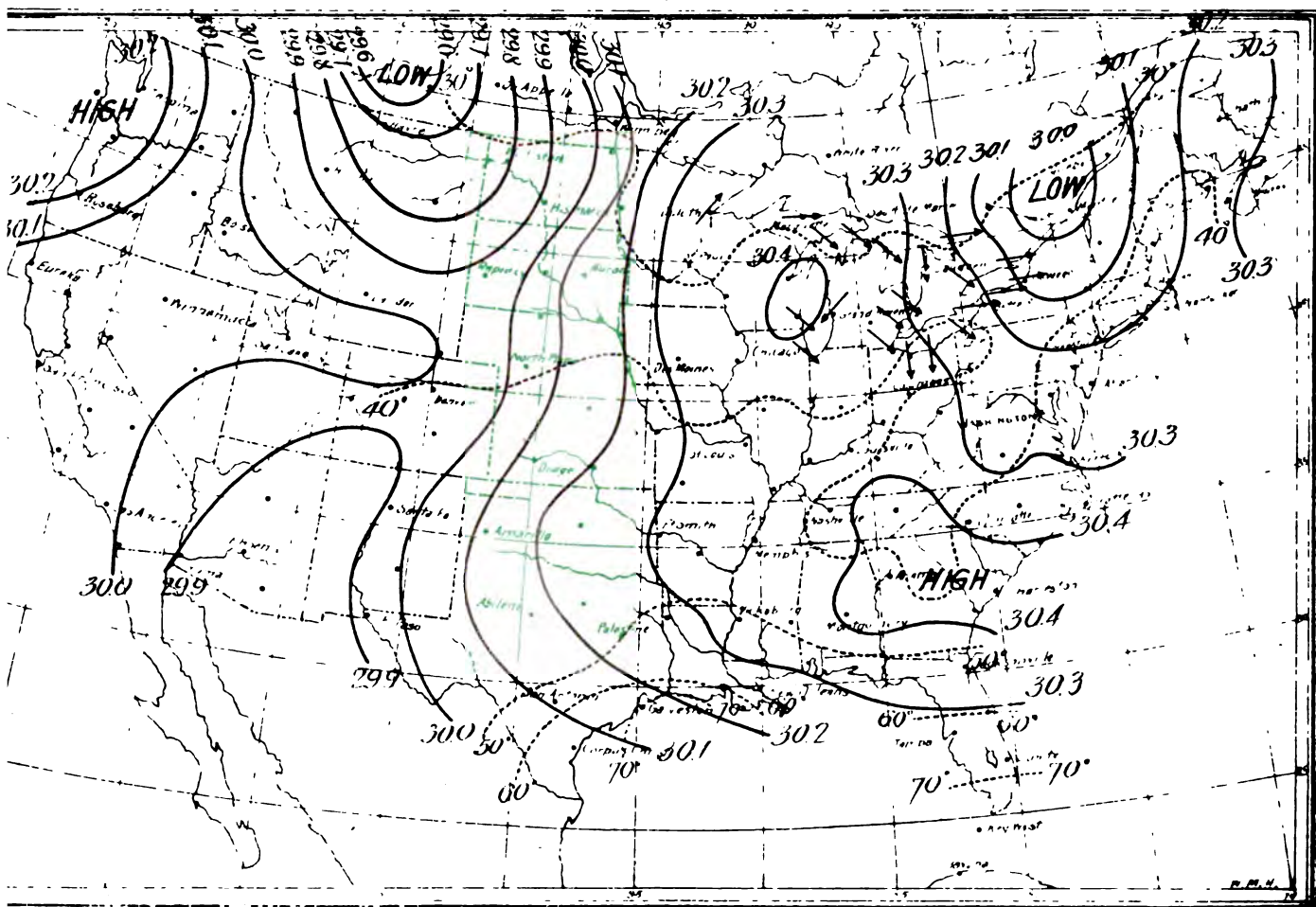


Chart DLXXXIX.

October 28, 1885—7 a. m.

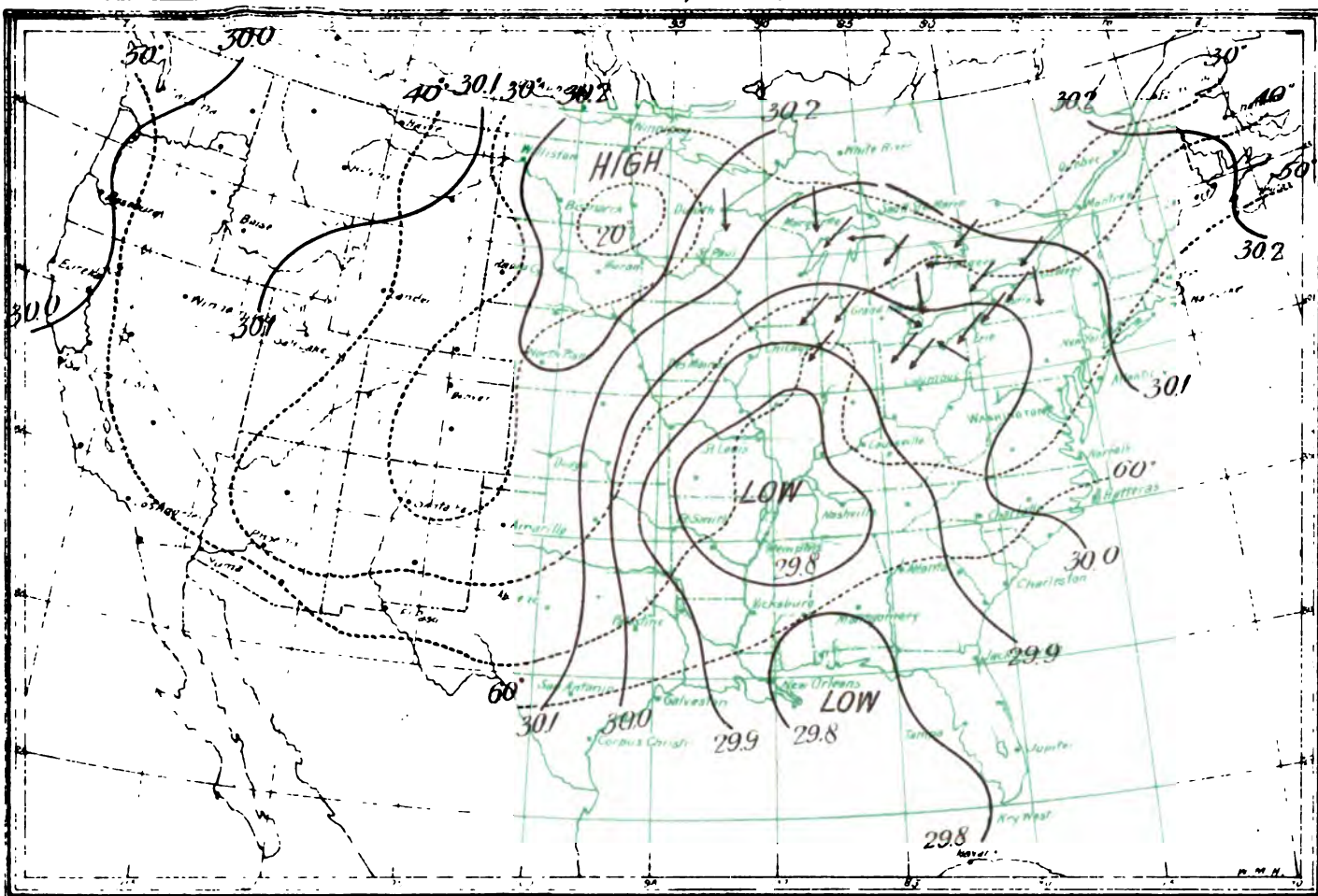


Chart DXO.

October 28, 1885—3 p. m.

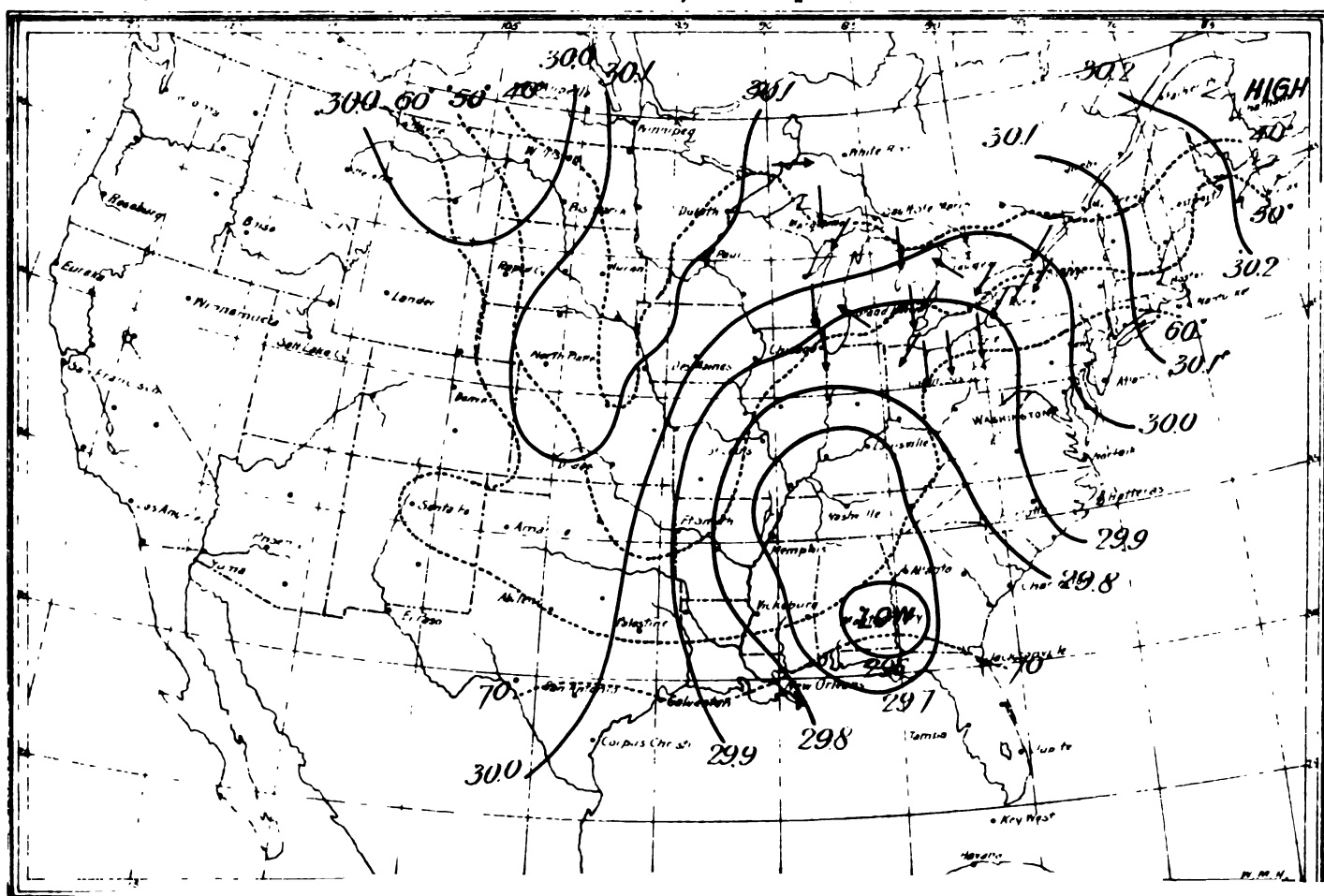


Chart DXOI.

October 29, 1885—7 a. m.

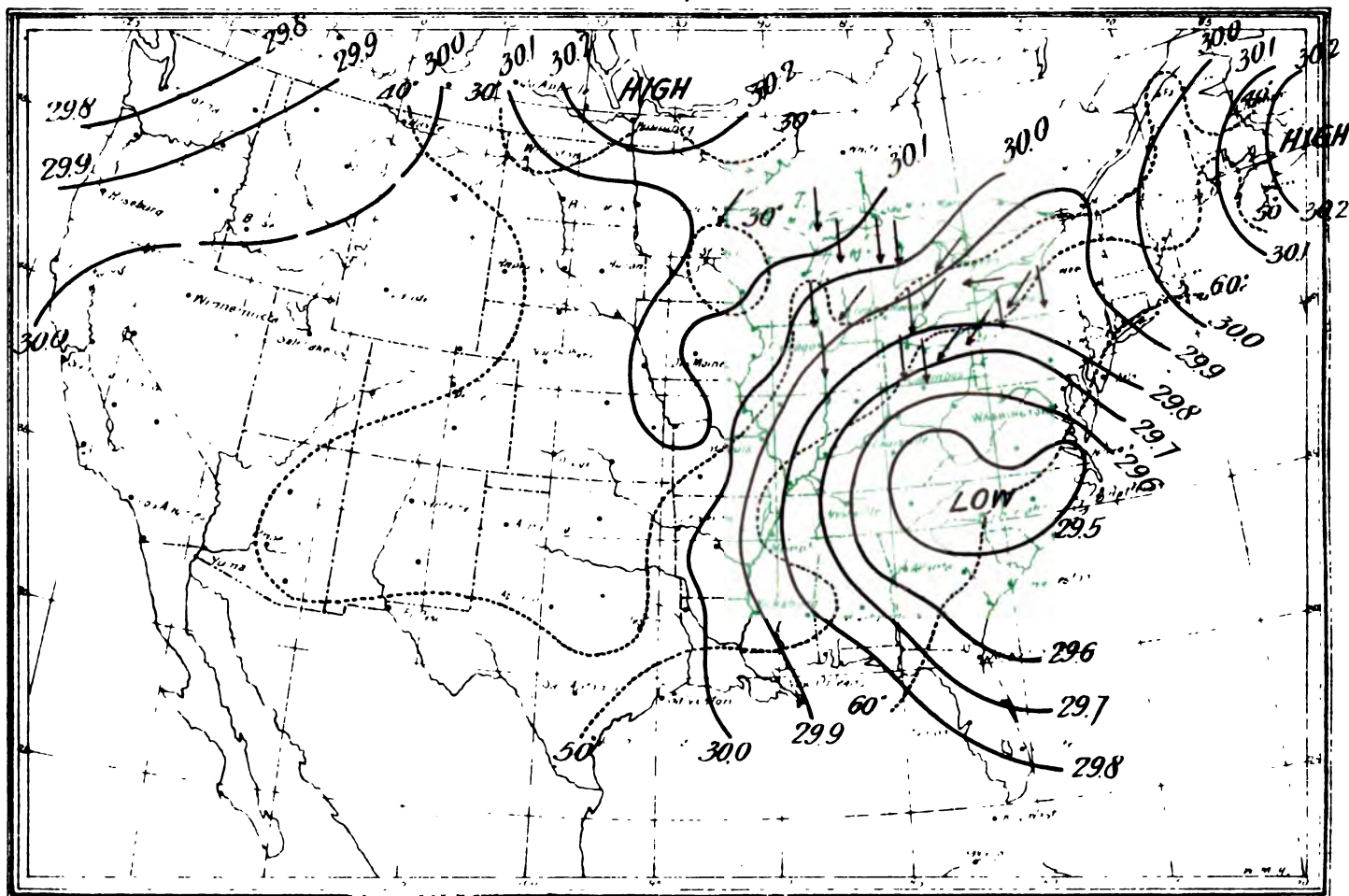


Chart DXOII.

October 29, 1885—3 p. m.

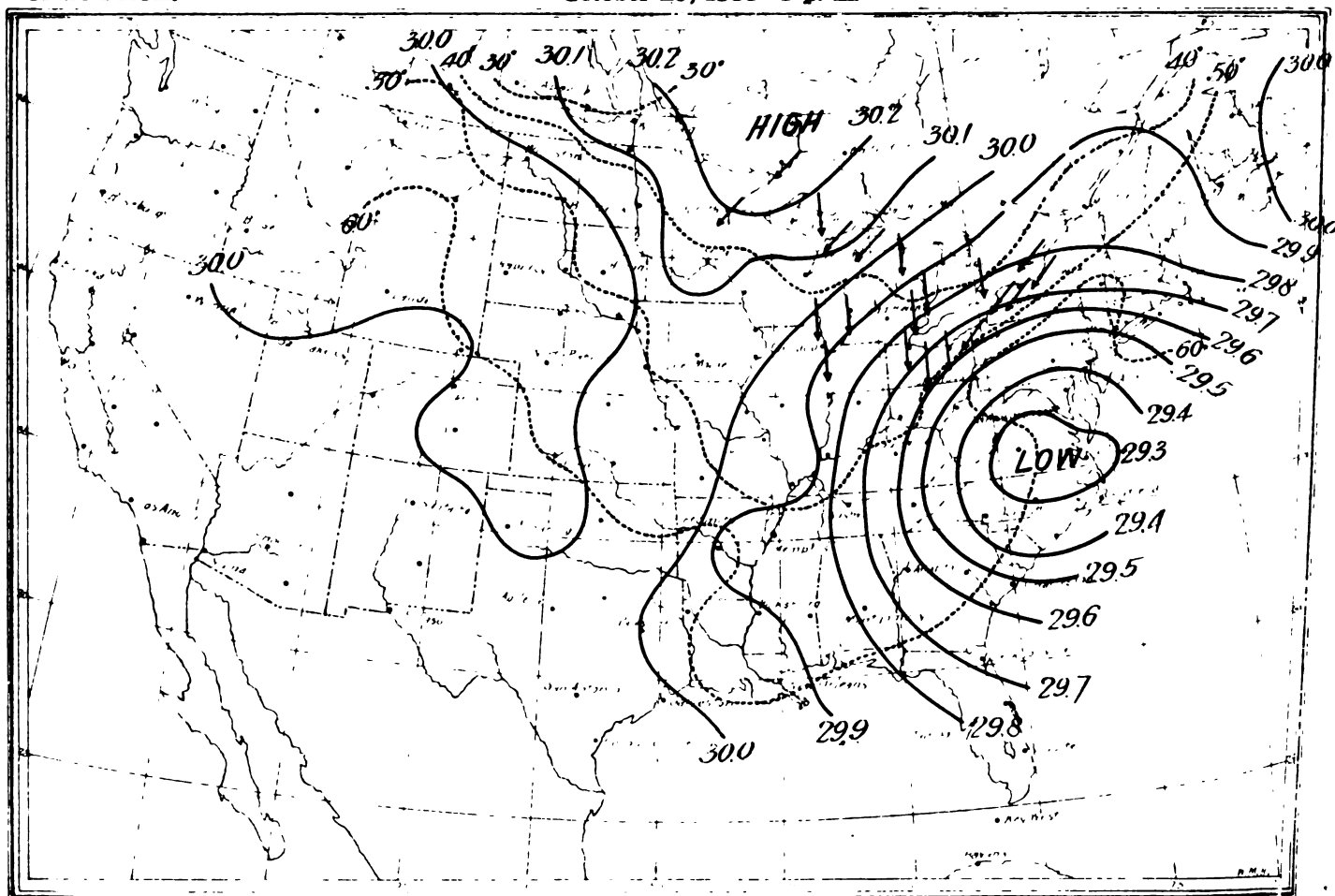


Chart DXOIII.

October 18, 1886—7 a. m.

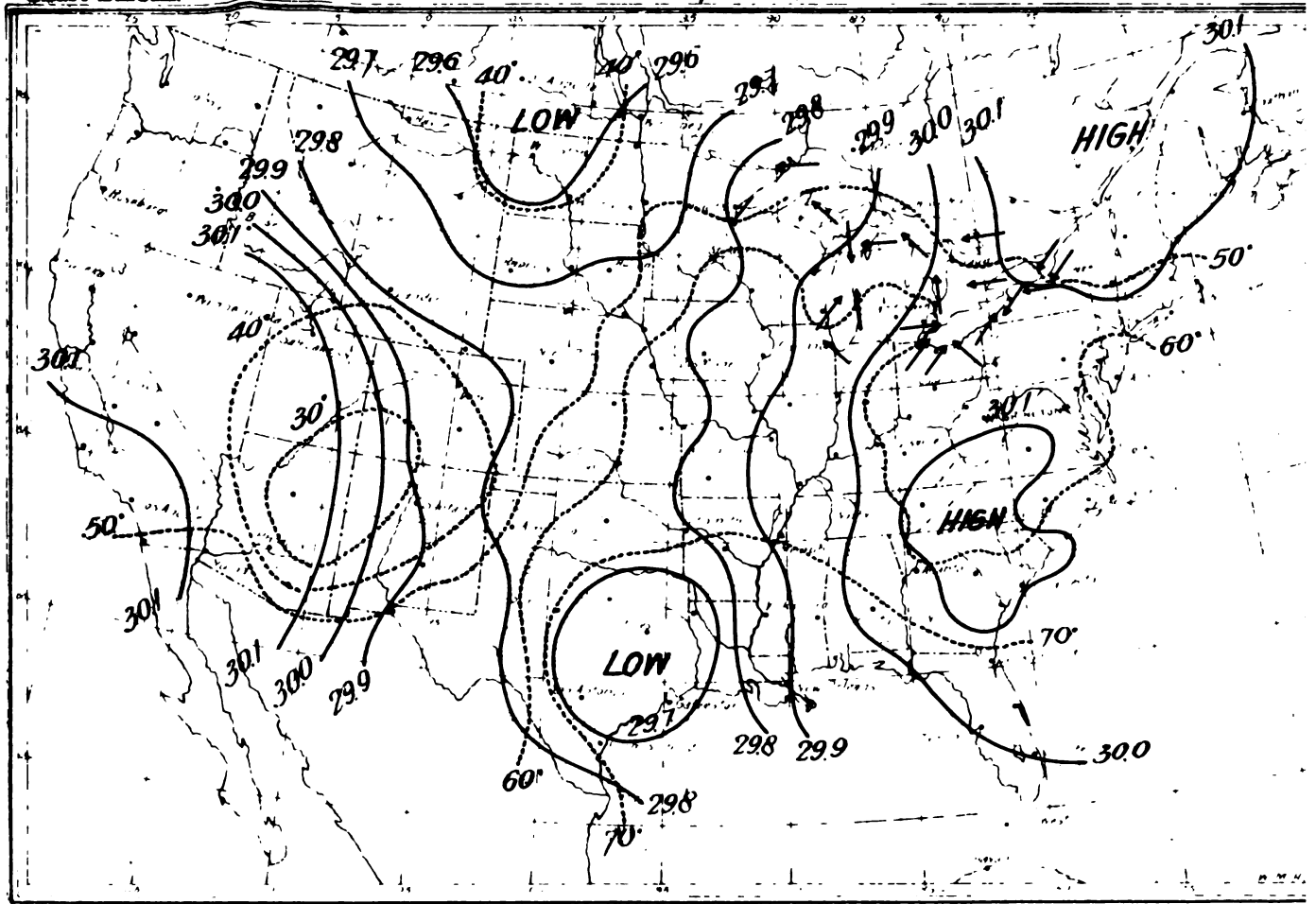


Chart DXOIV.

October 18, 1886—3 p. m.

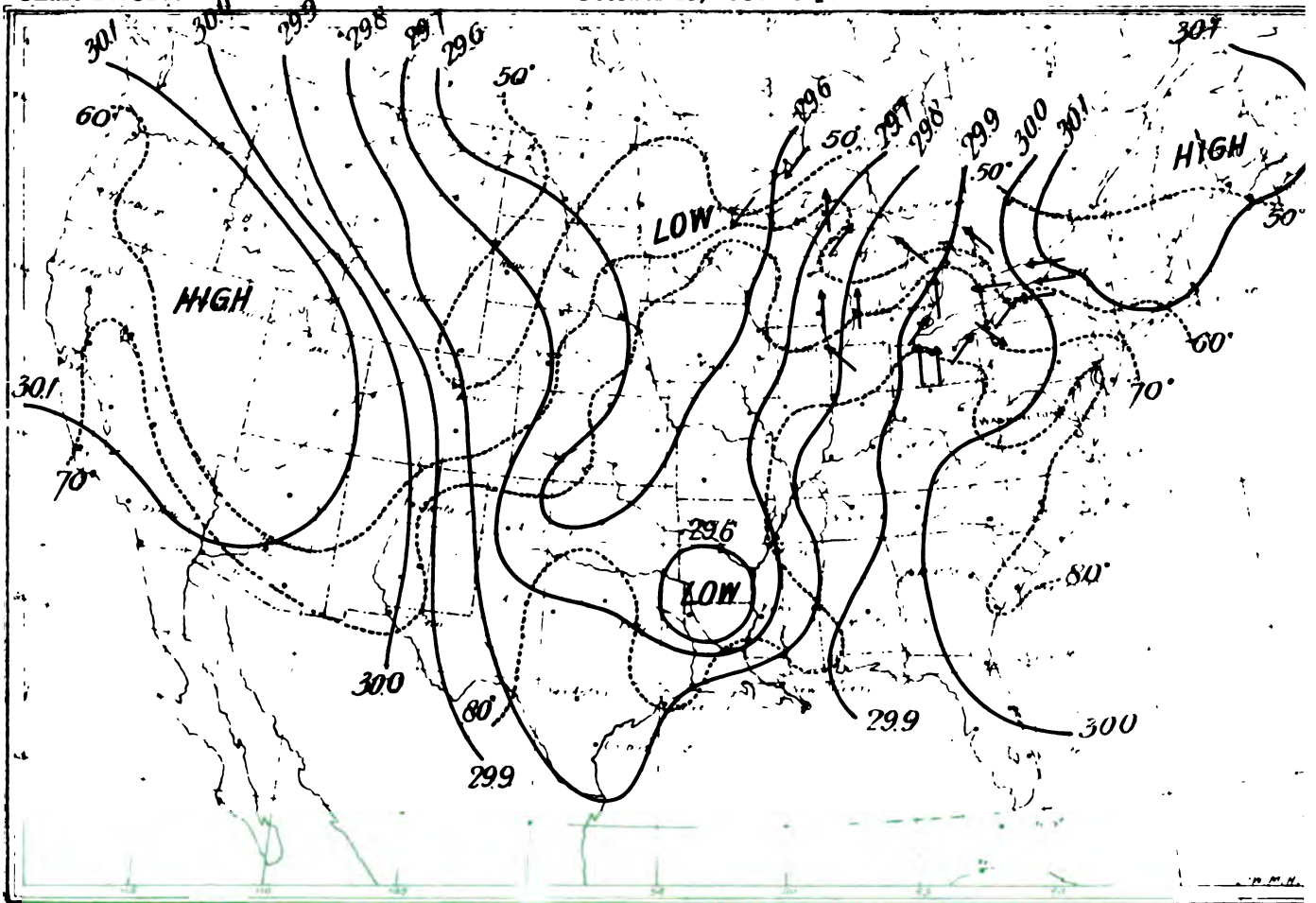


Chart DXOV.

October 14, 1886—7 a. m.

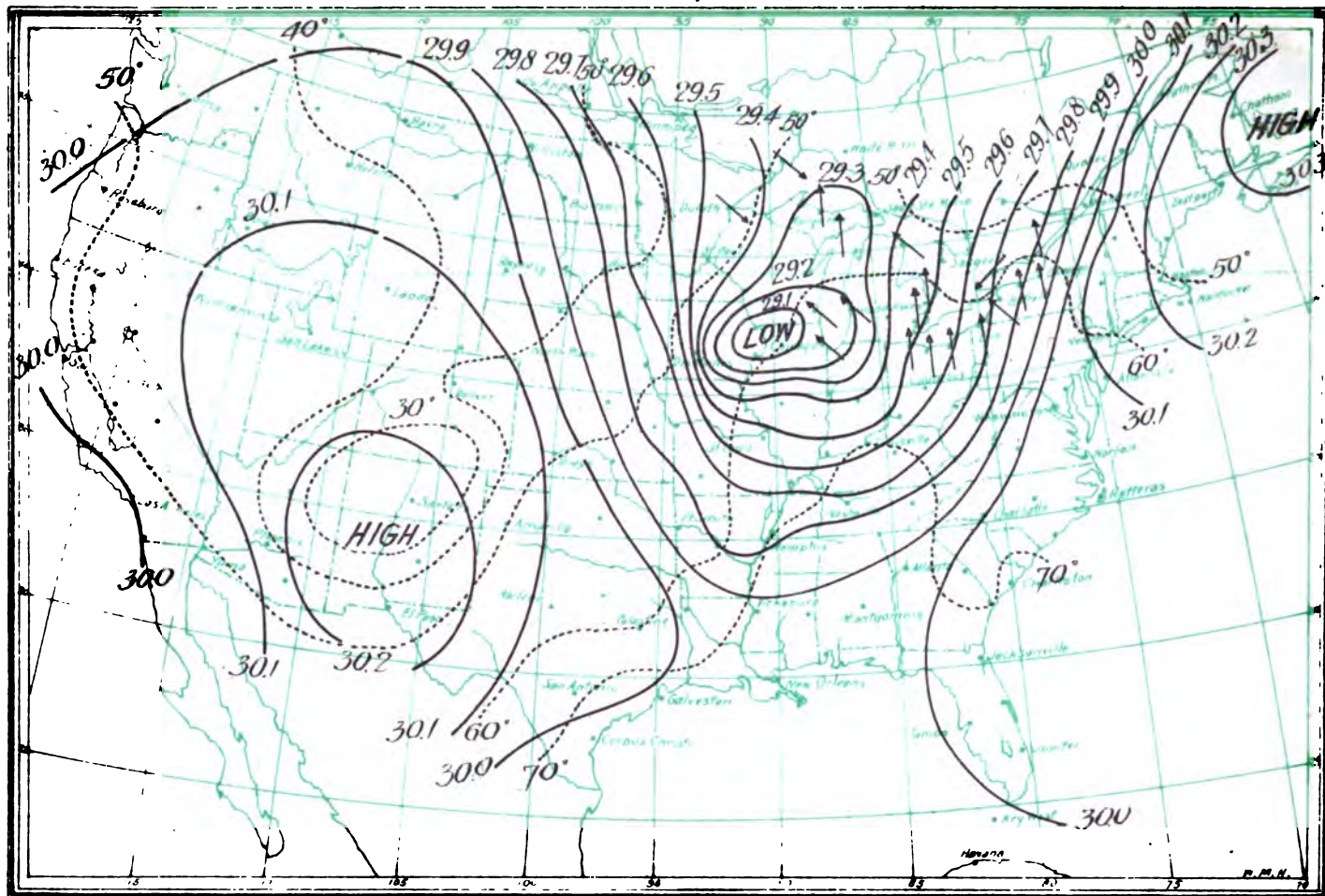


Chart DXOVI.

October 14, 1886—3 p. m.

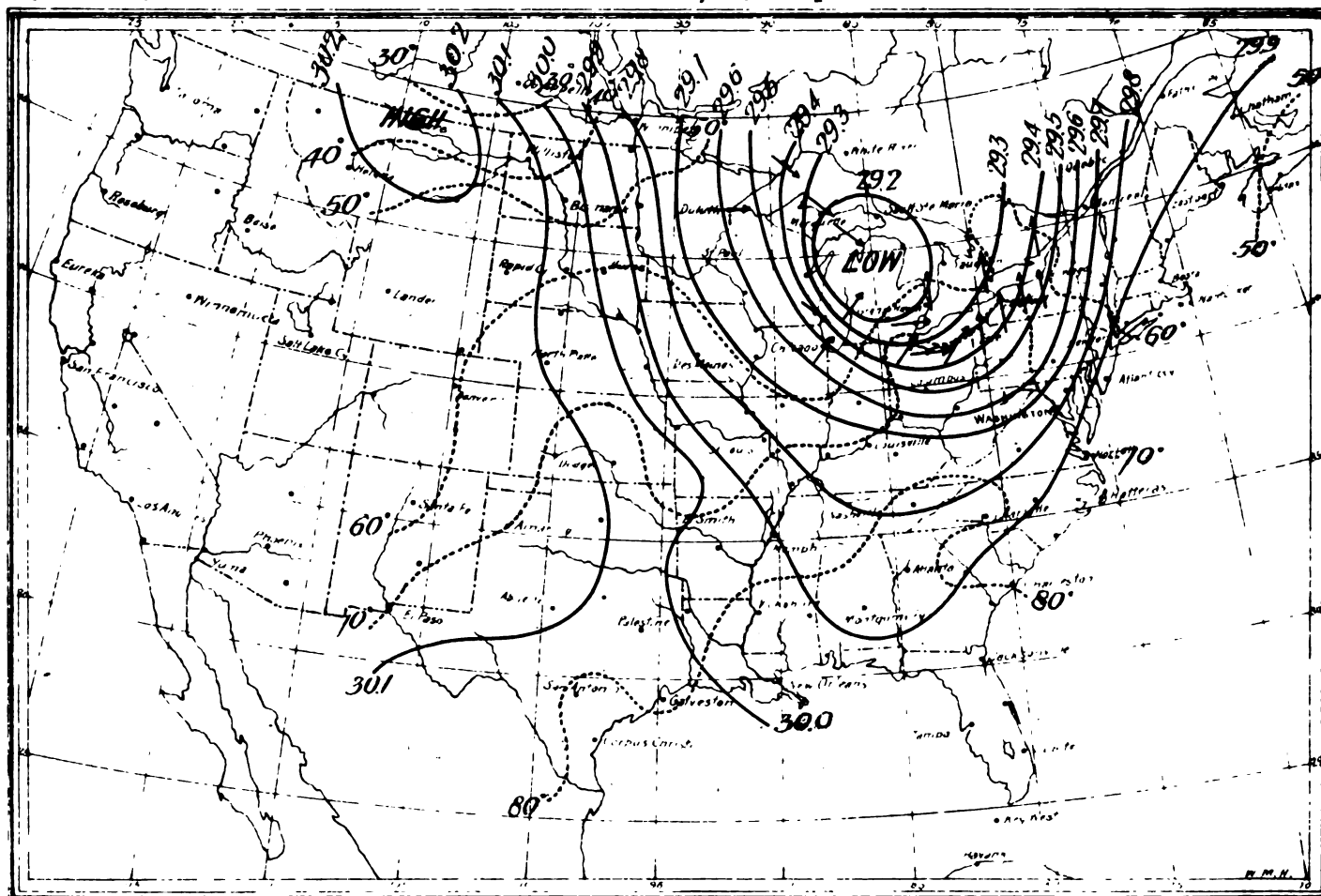


Chart DXOVII.

October 1, 1887—8 p. m.

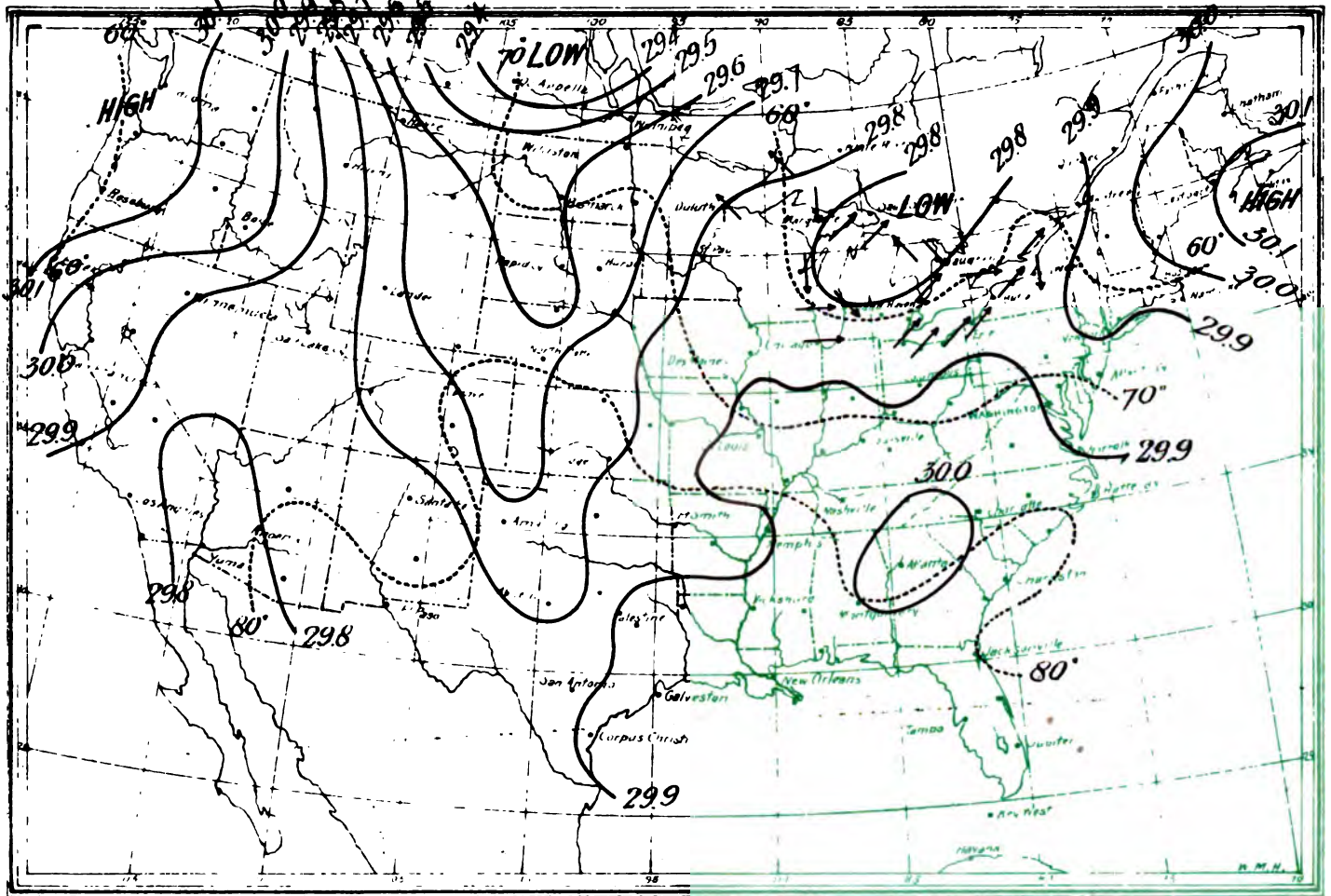
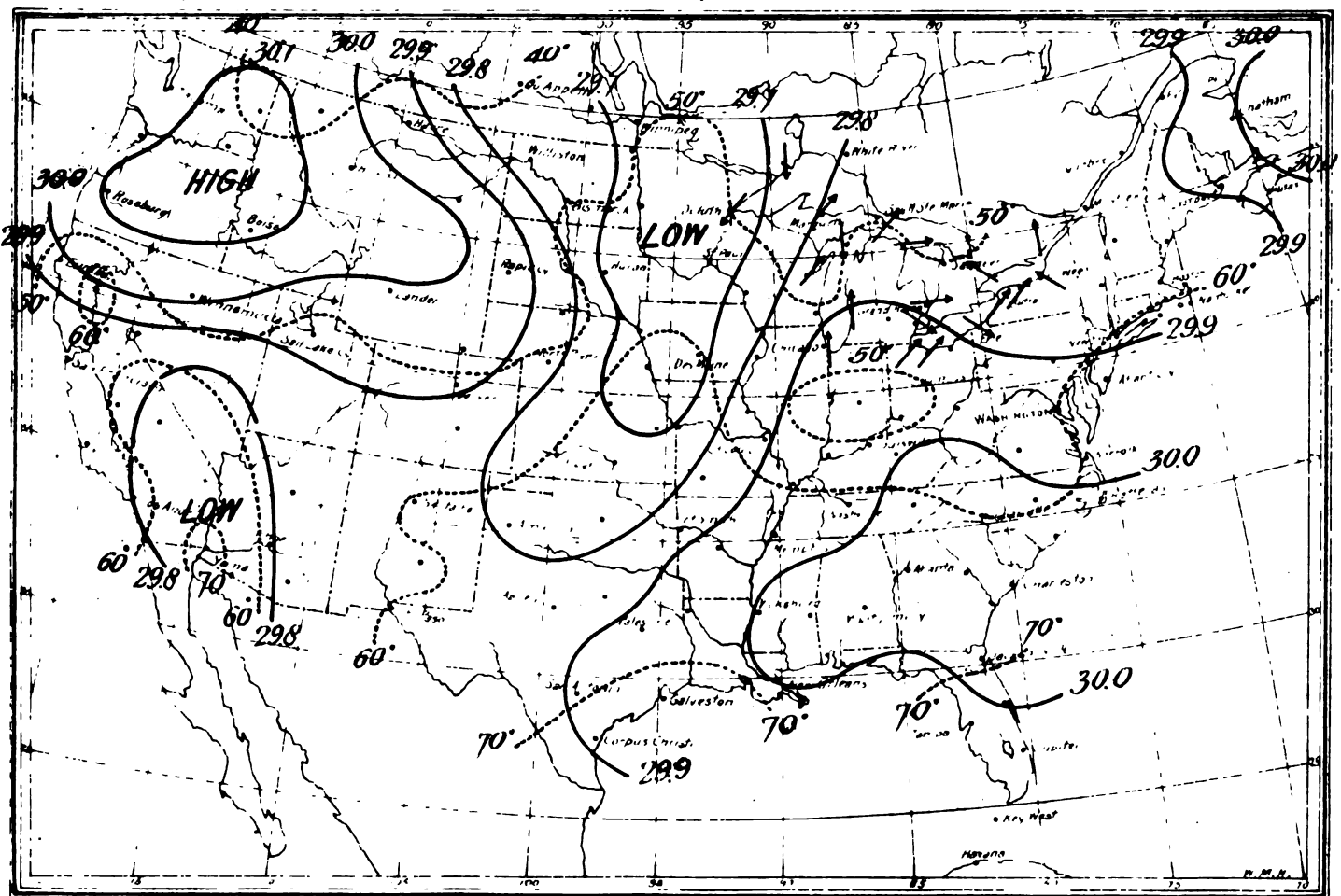


Chart DXOVIII.

October 2, 1887—7 a. m.



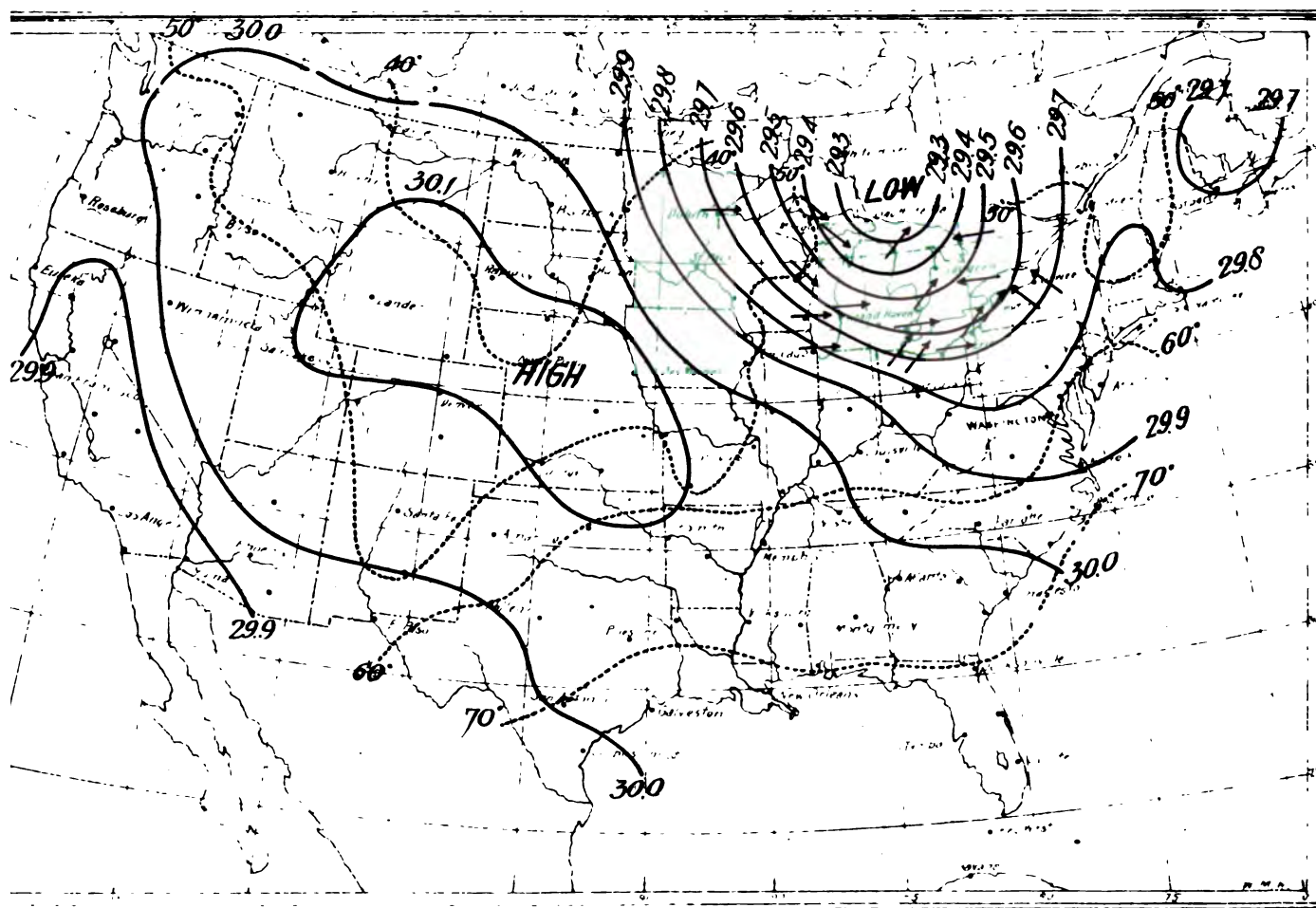
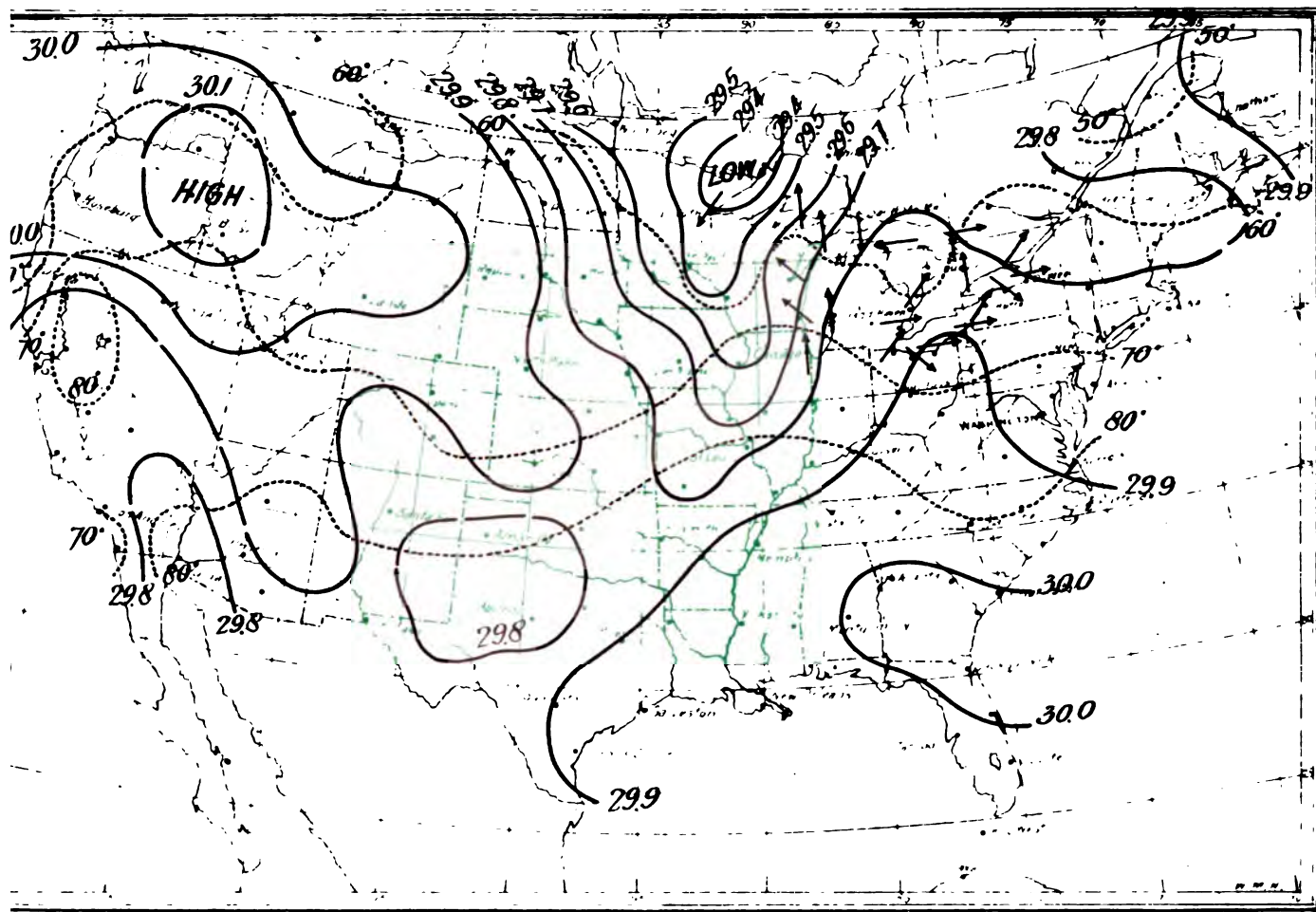


Chart DCL

October 22, 1887—8 p. m.

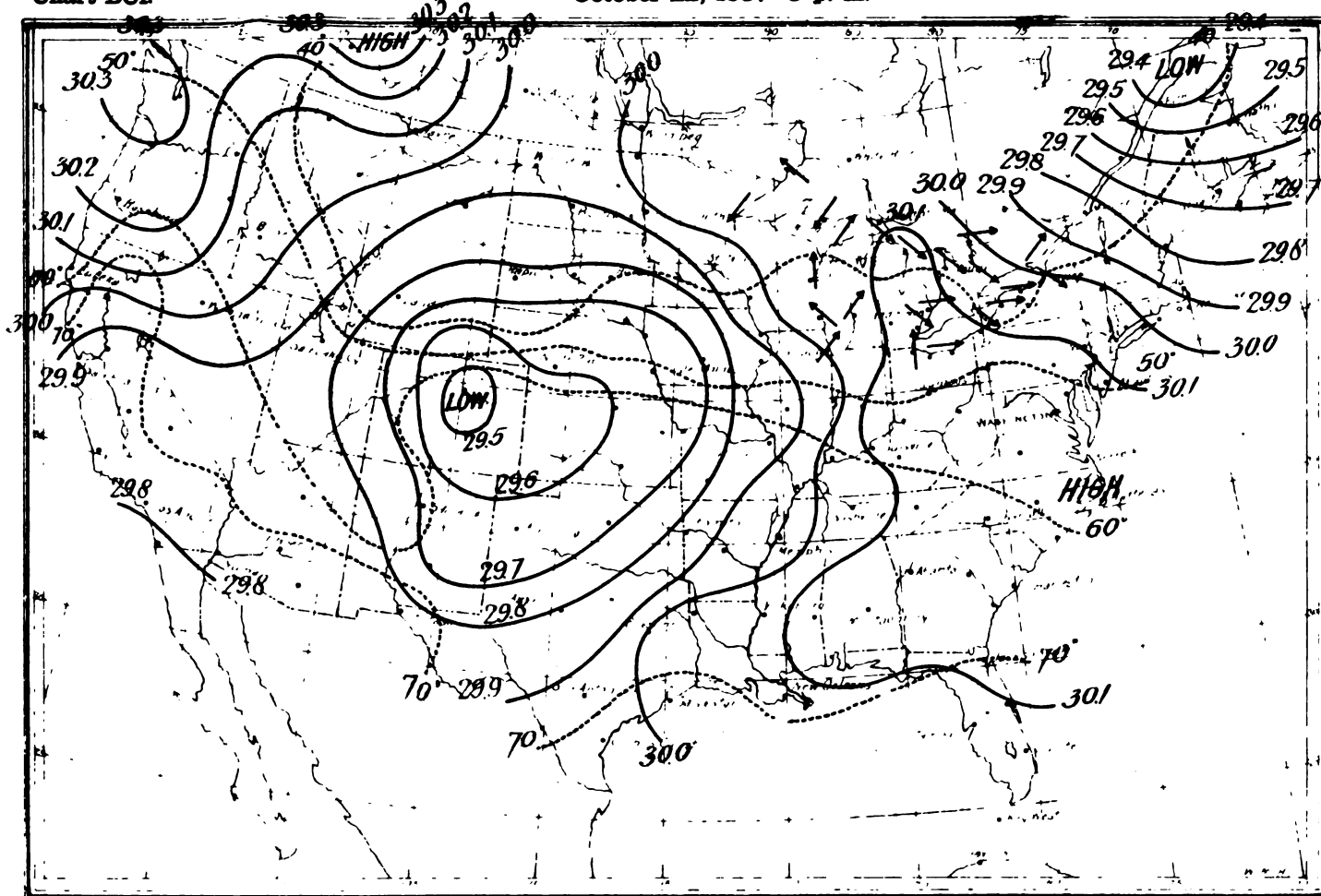


Chart DCLII.

October 28, 1887—7 a. m.

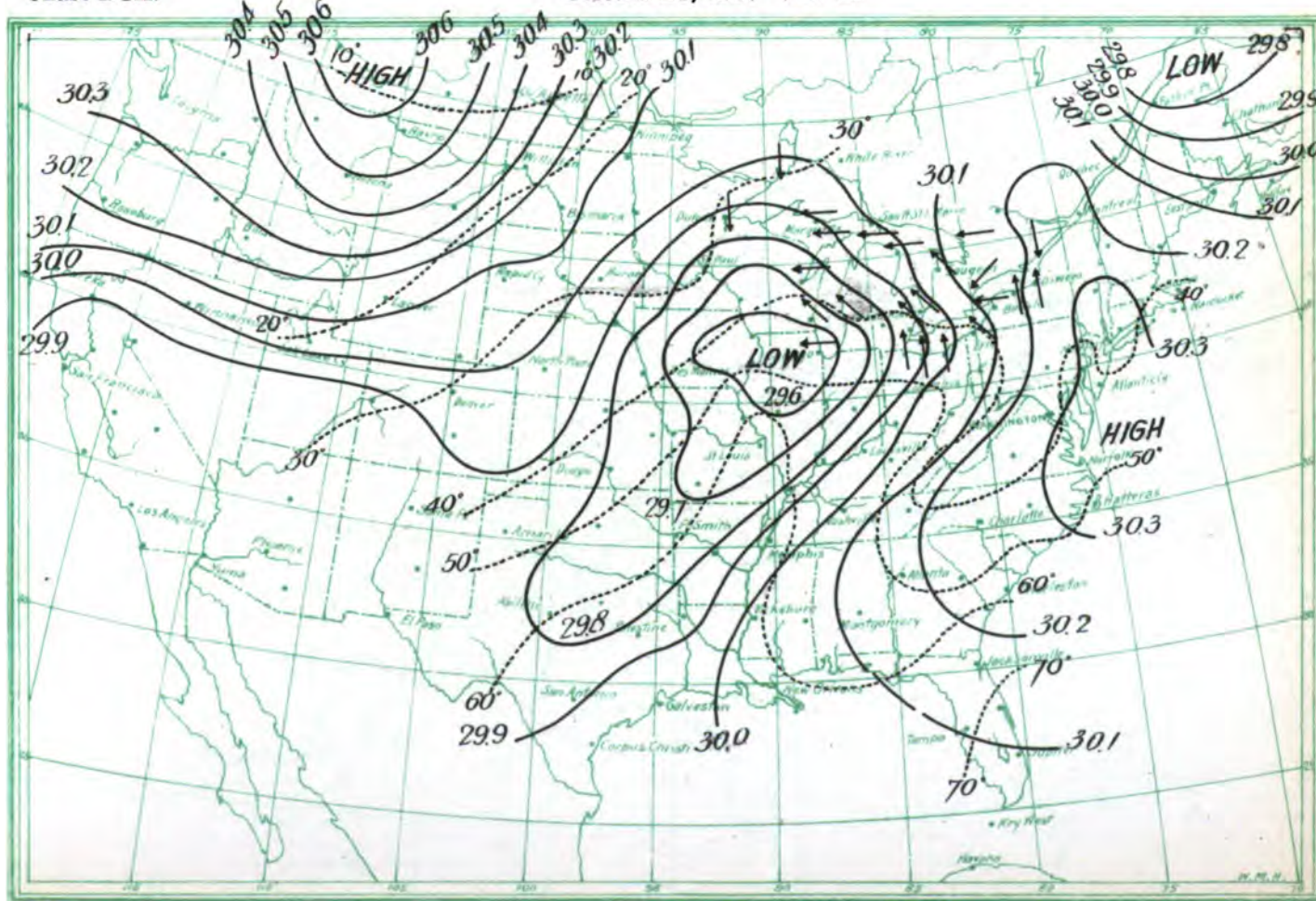


Chart DOIII.

October 23, 1887—3 p. m.

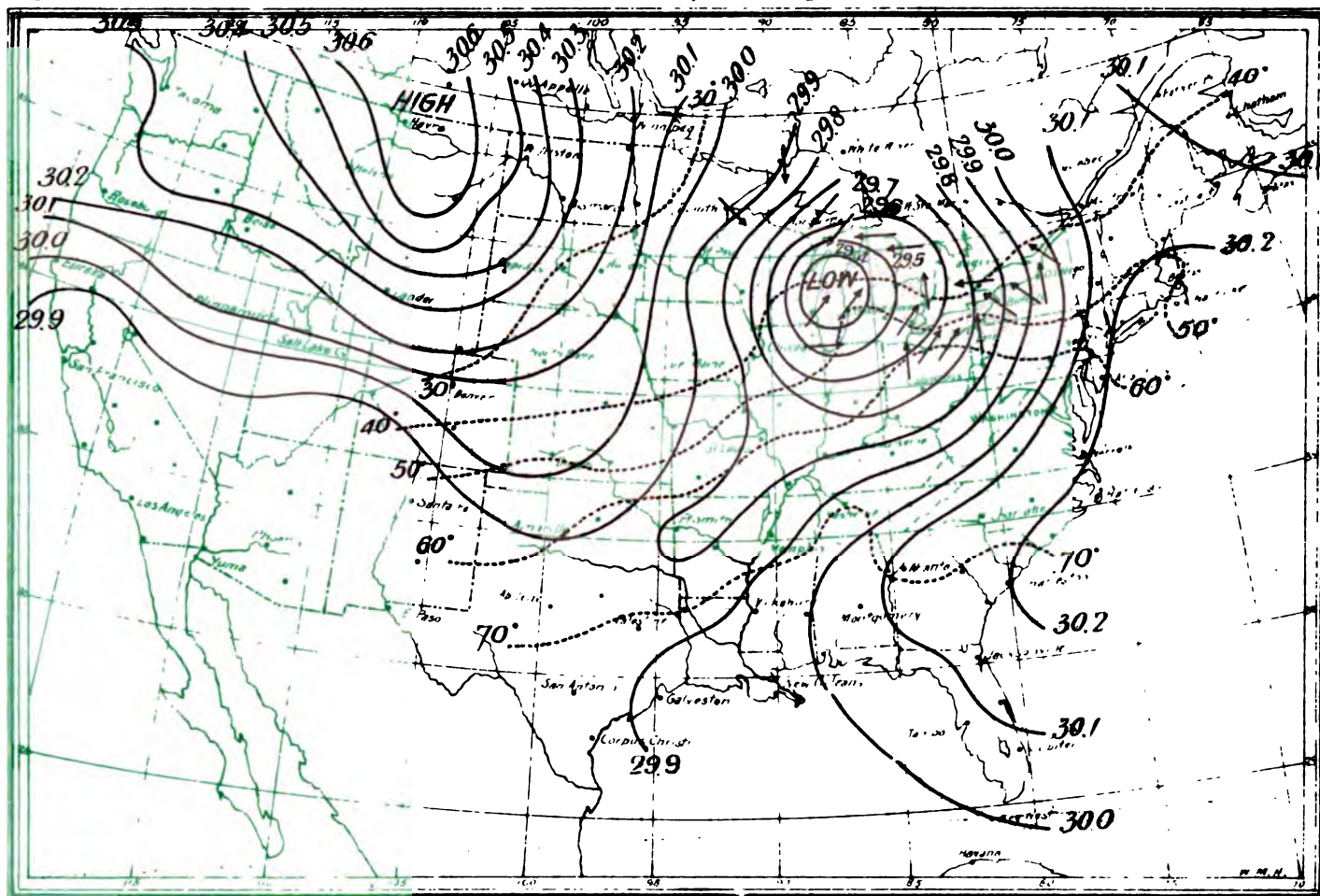


Chart DOIV.

October 24, 1887—7 a. m.

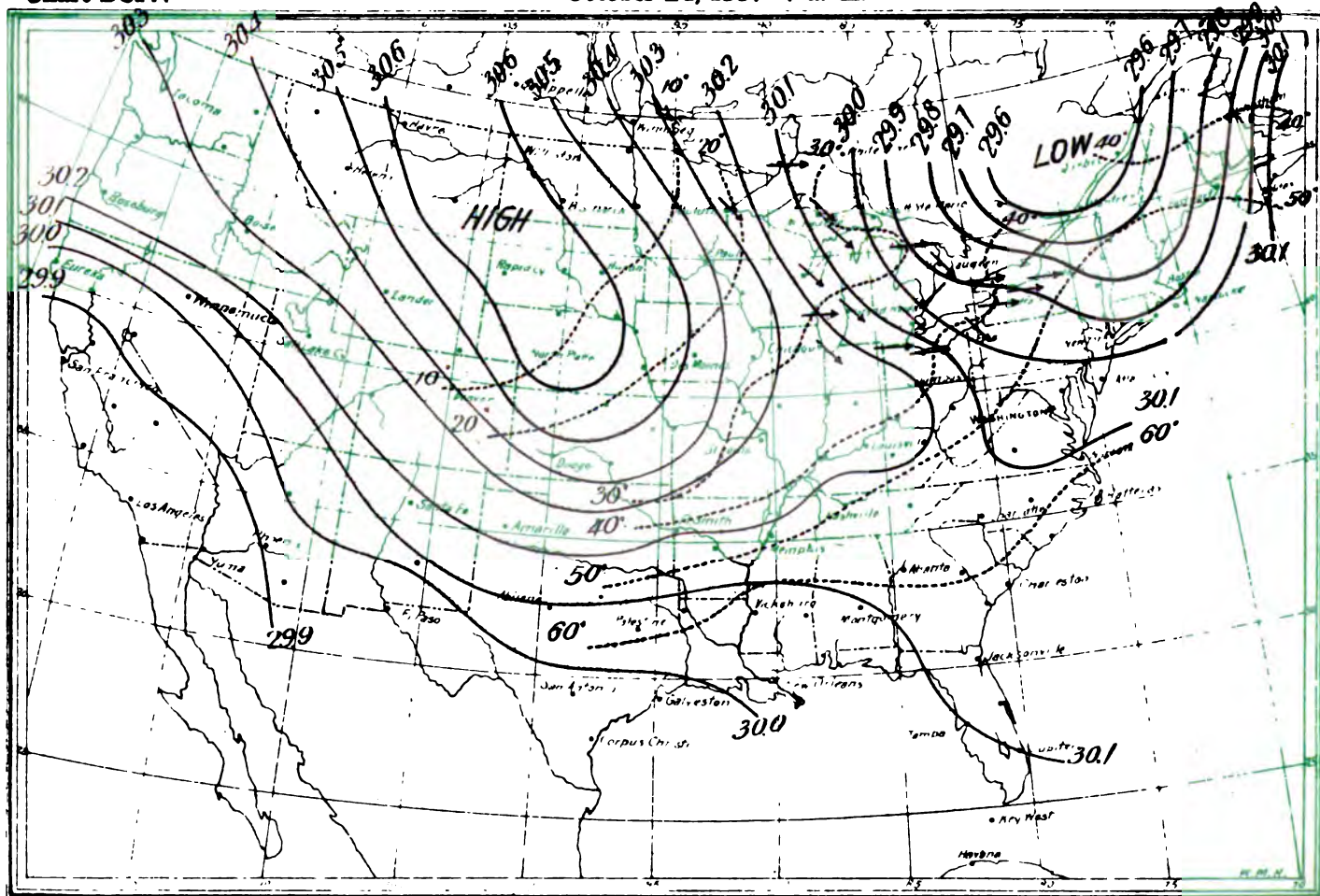


Chart DOV.

October 4, 1889-8 a. m.

The map displays the following features:

- Isobars:** Lines of equal pressure are drawn, with values including 29.9, 30.0, 30.1, 30.2, 30.3, and 30.4.
- Pressure Centers:** Two areas are circled and labeled 'HIGH', and one area is circled and labeled 'LOW'.
- Geographic Labels:** Numerous cities and locations are marked, including San Francisco, Los Angeles, San Antonio, St. Louis, Chicago, New York, and many others.
- Latitude and Longitude:** The map includes a grid of latitude and longitude lines, with labels for 30°, 40°, 50°, 60°, and 70° latitude, and 120°, 110°, 100°, 90°, 80°, and 70° longitude.
- Map Title and Date:** The title 'Chart DOV.' is in the top left corner, and the date 'October 4, 1889-8 a. m.' is in the top center.

Chart DOV.

October 4, 1889-8 a. m.

The map displays the following features:

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- Map Title and Date:** The title 'Chart DOV.' is in the top left corner, and the date 'October 4, 1889-8 a. m.' is in the top center.

U.S. WEATHER

This hand-drawn weather map of the United States displays the following features:

- Isobars:** Solid lines representing pressure levels, with values ranging from 30.0 to 30.3.
- Isotherms:** Dashed lines representing temperature levels, with values ranging from 50° to 80°.
- Fronts:** Dashed lines with arrows indicating the direction of movement.
- Pressure Systems:** A "HIGH" is labeled in the upper central region, and a "LOW" is labeled in the upper right region.
- Cities and Locations:** Numerous cities are marked, including New York, Philadelphia, Washington, Baltimore, New Orleans, and many others.
- Weather Symbols:** Various symbols are used to denote weather conditions, such as clouds, rain, and sun.

Chart DXOI.

October 29, 1885—7 a. m.

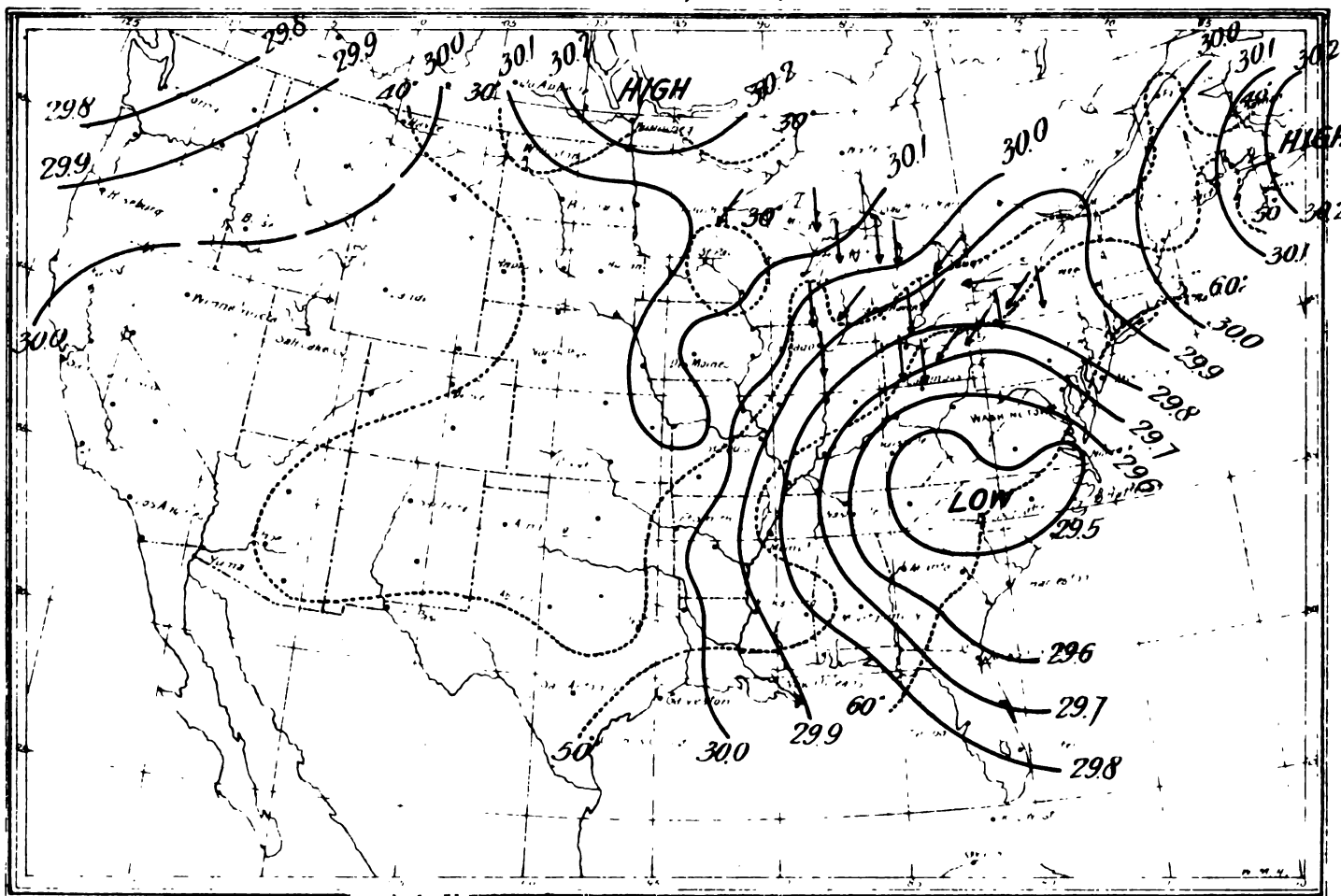


Chart DXOII.

October 29, 1885—3 p. m.

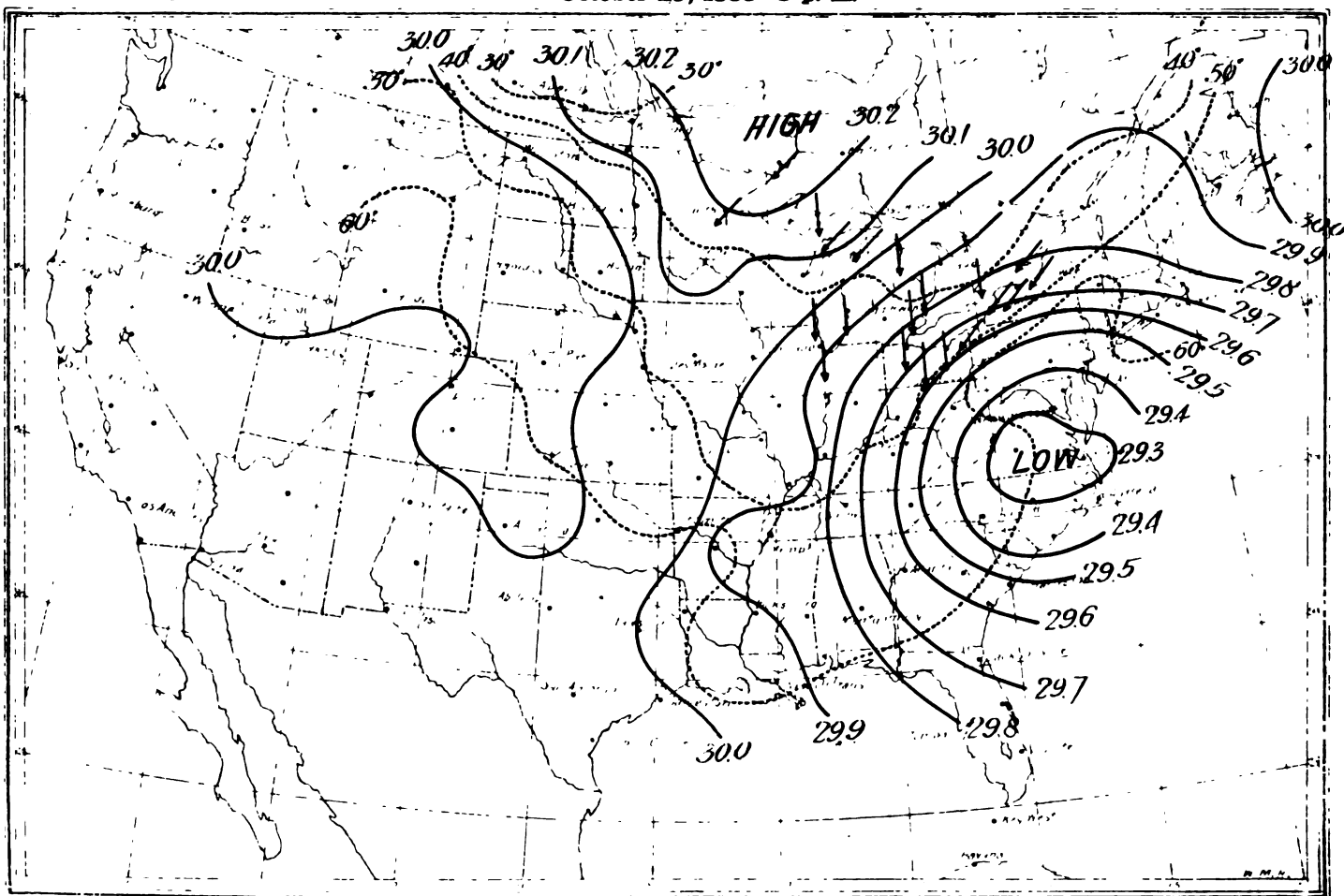


Chart DXCIII.

October 13, 1896—7 a. m.

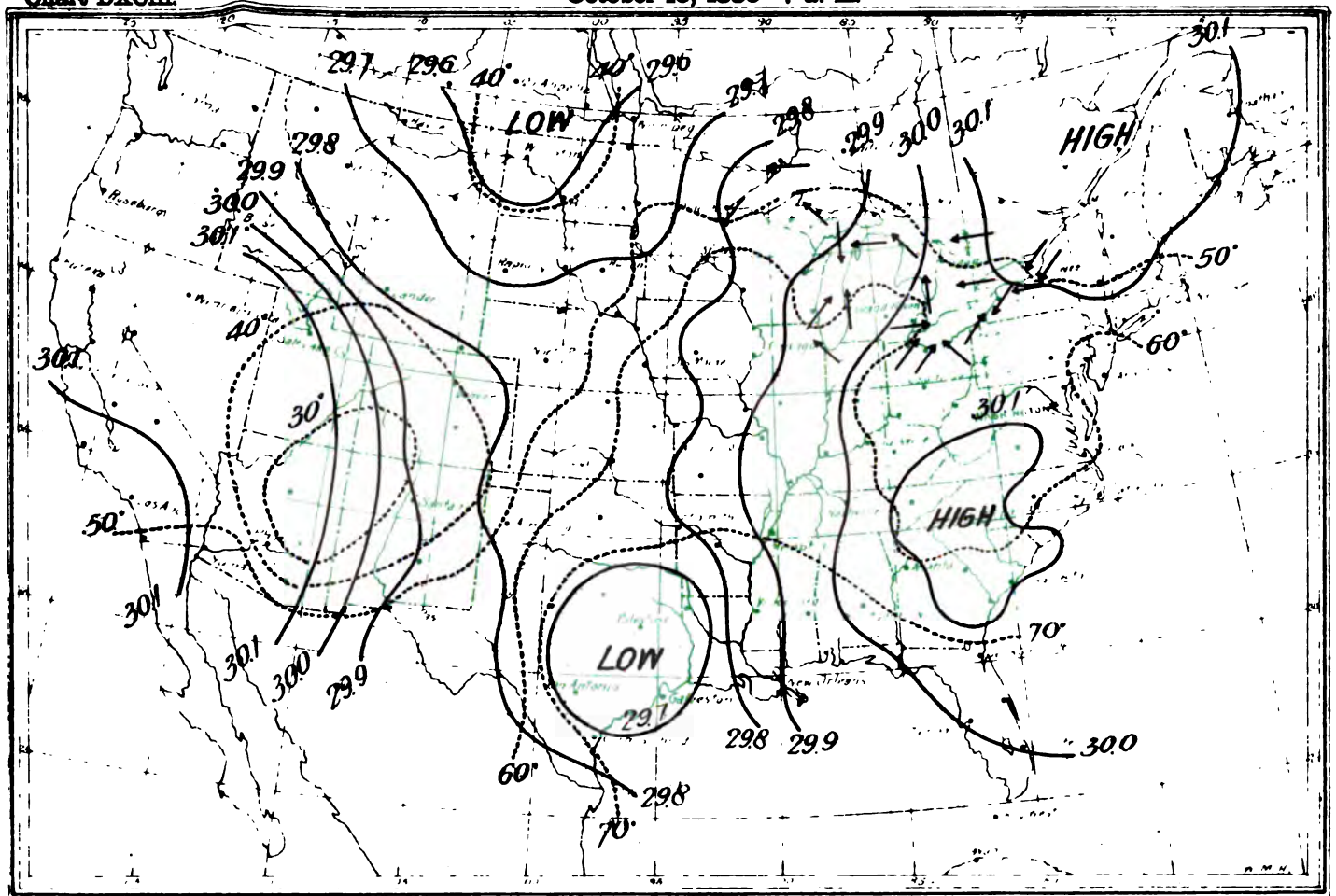


Chart DXCIV.

October 13, 1896—3 p. m.

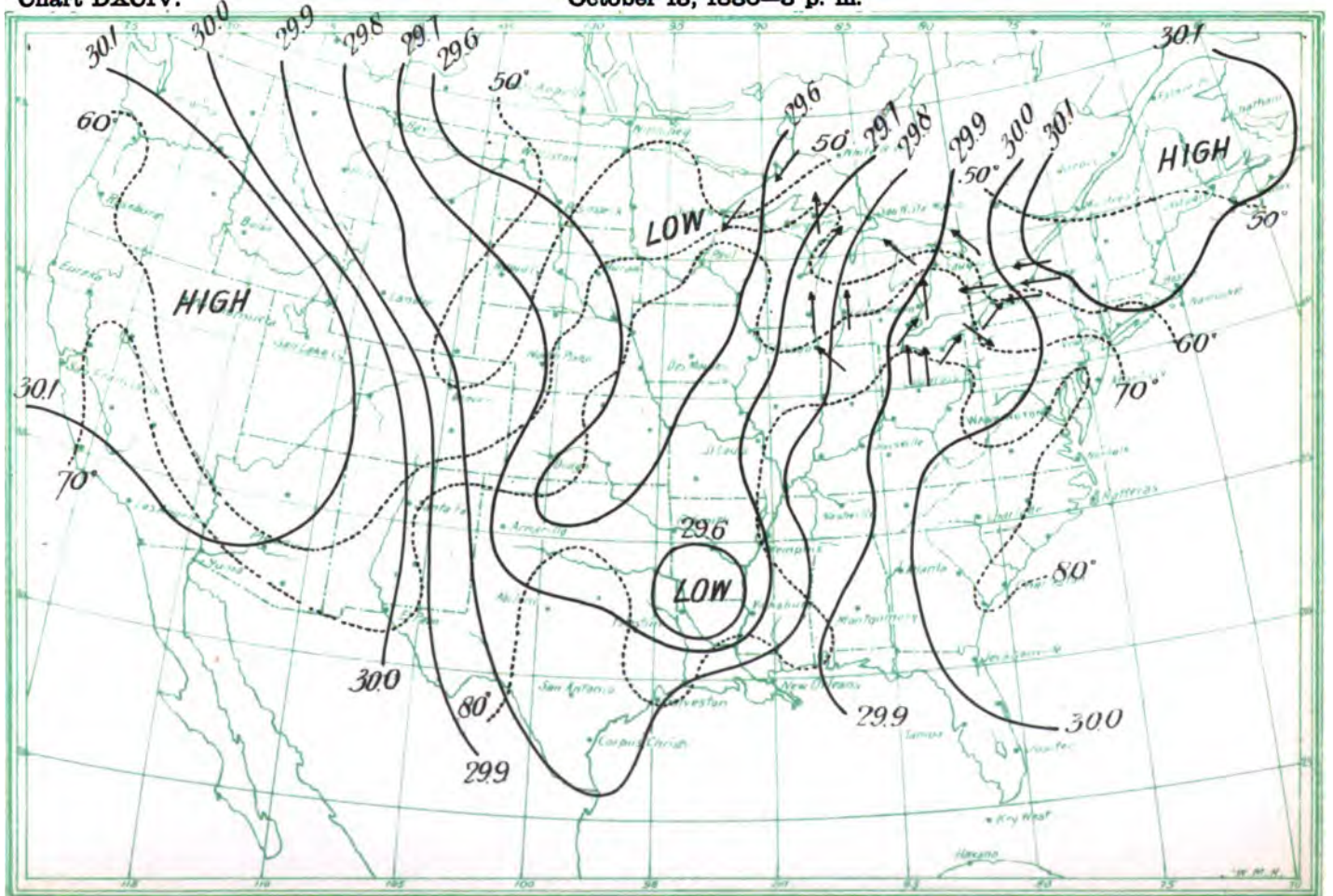


Chart DXOI.

October 29, 1885—7 a. m.

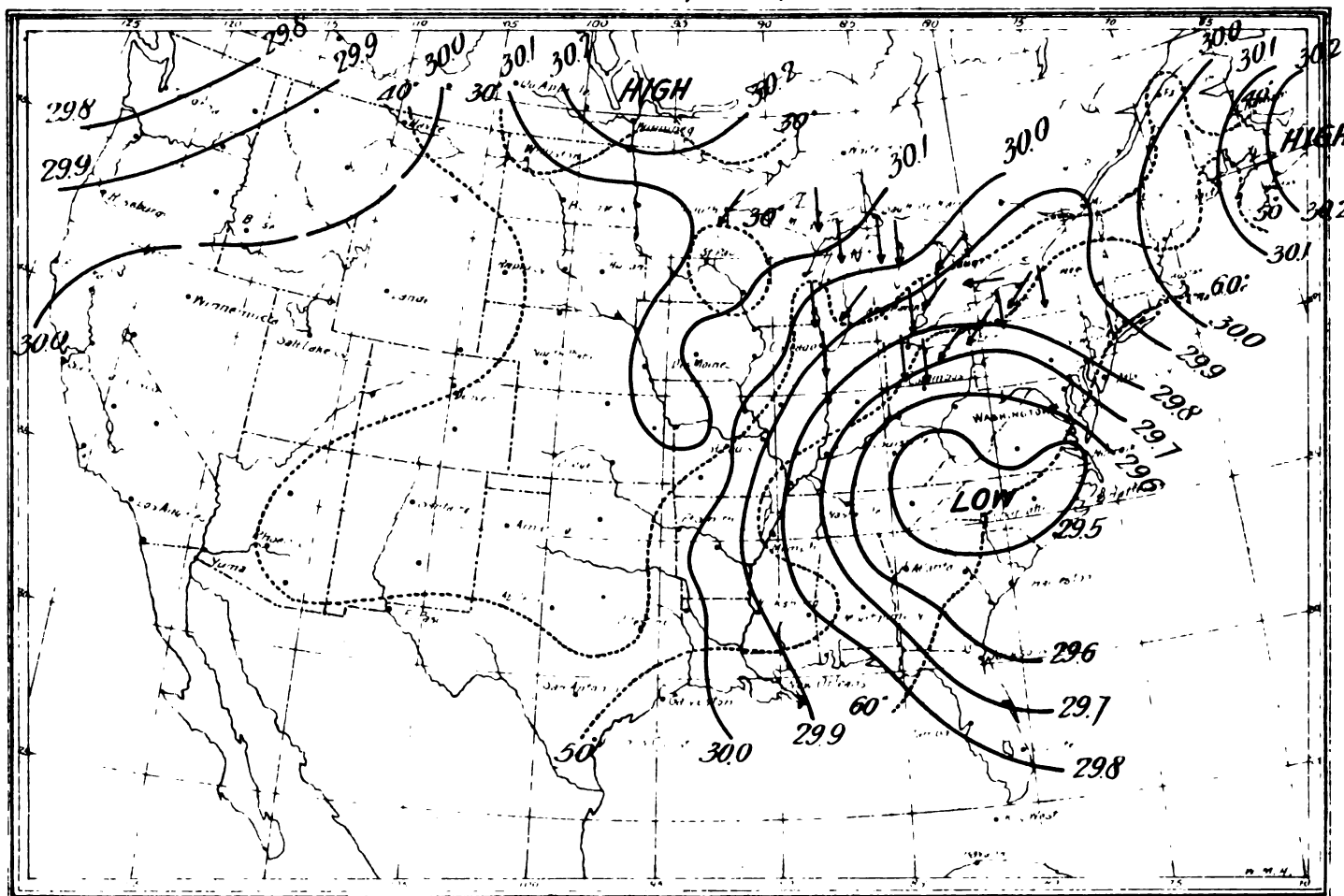


Chart DXOII.

October 29, 1885—3 p. m.

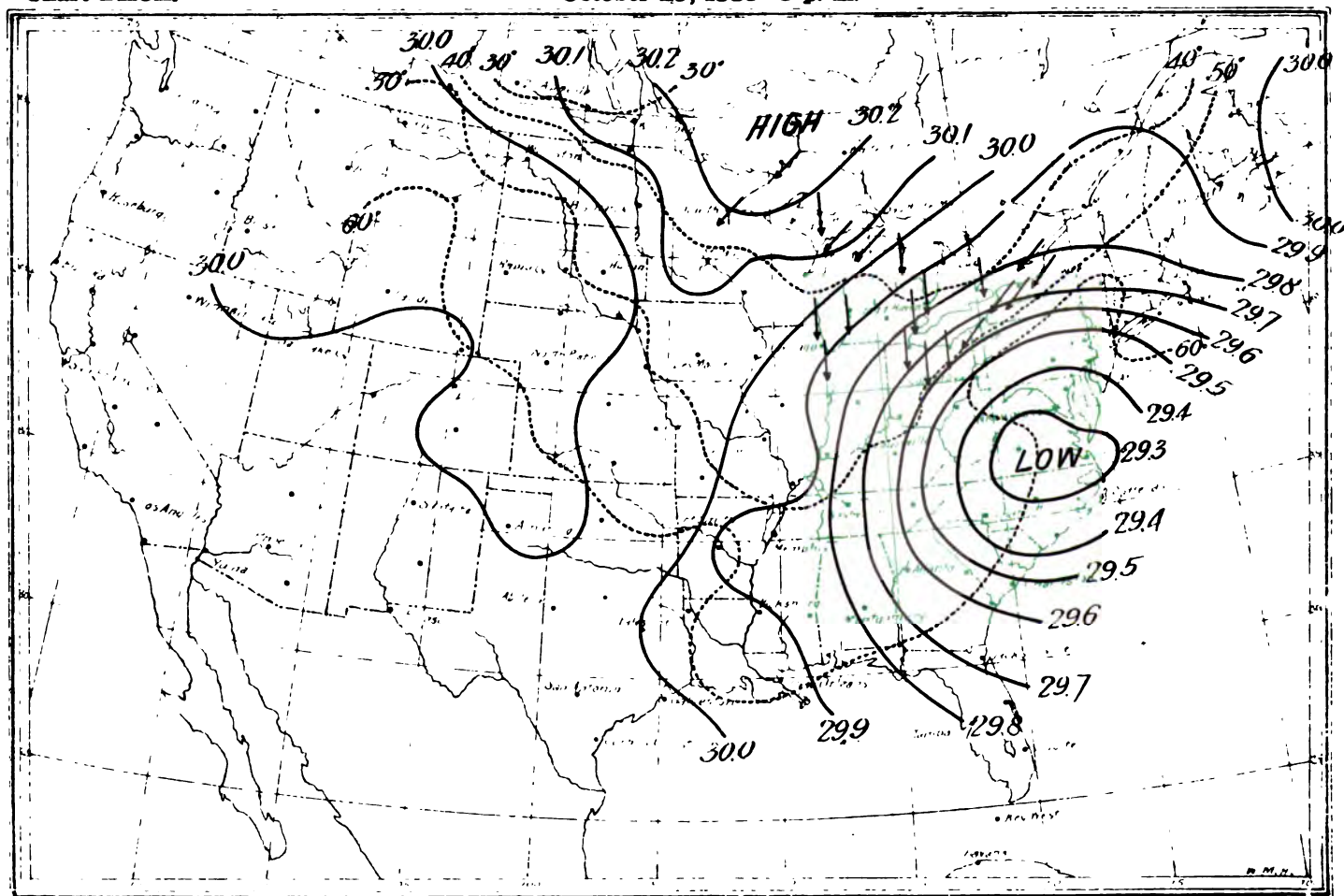


Chart DXCIII.

October 13, 1886—7 a. m.

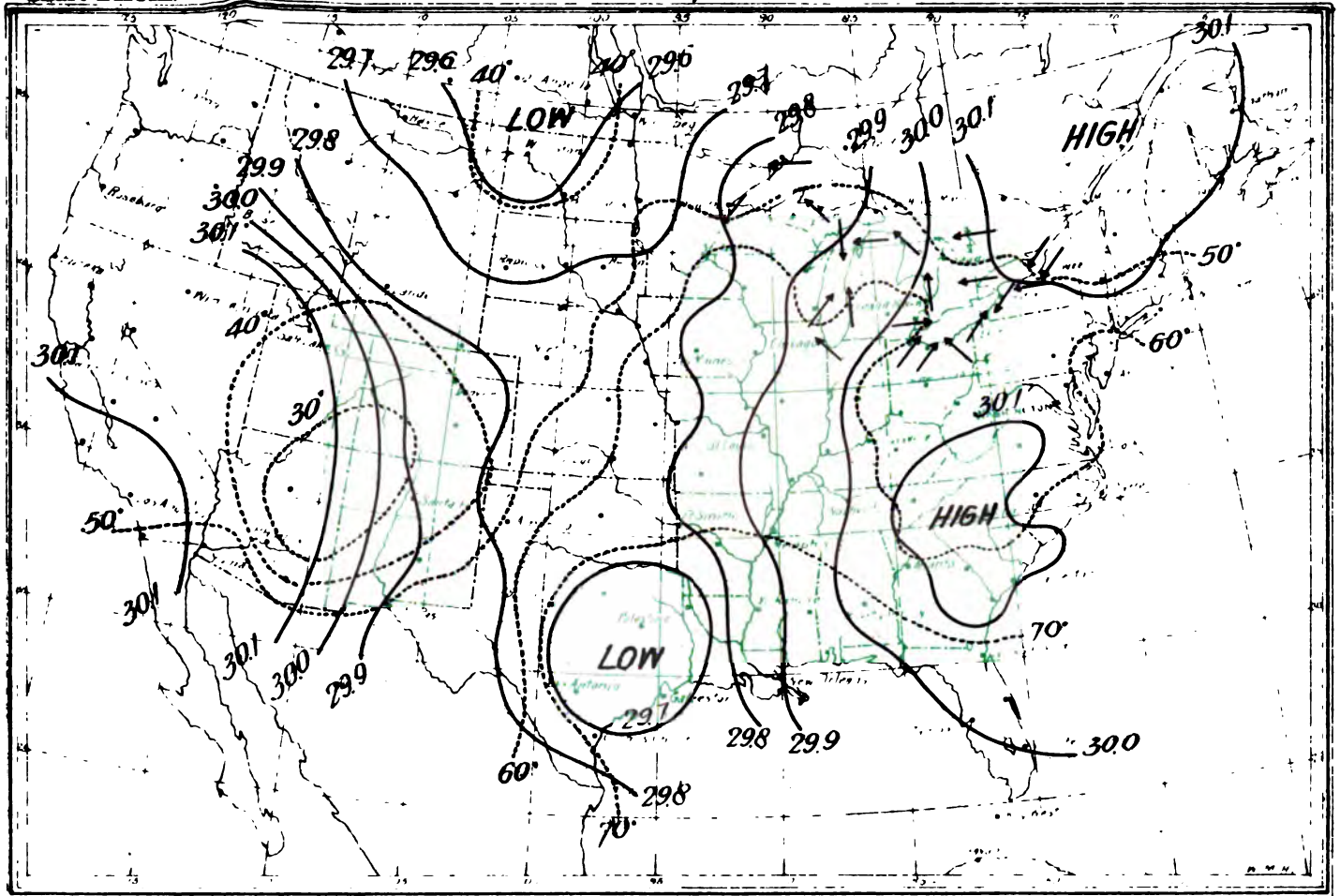


Chart DXCIV.

October 13, 1886—3 p. m.

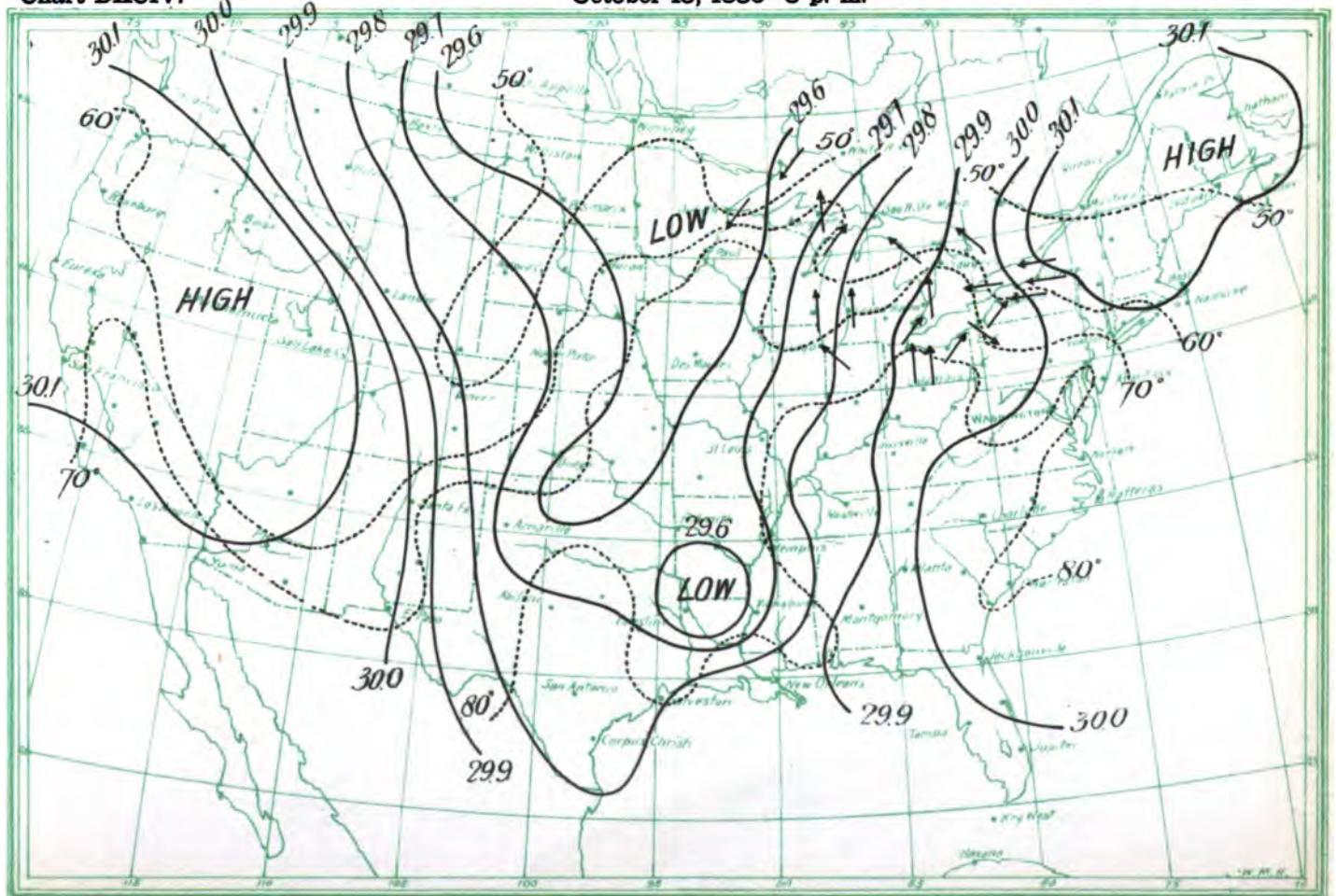


Chart DXOV.

October 14, 1886—7 a. m.

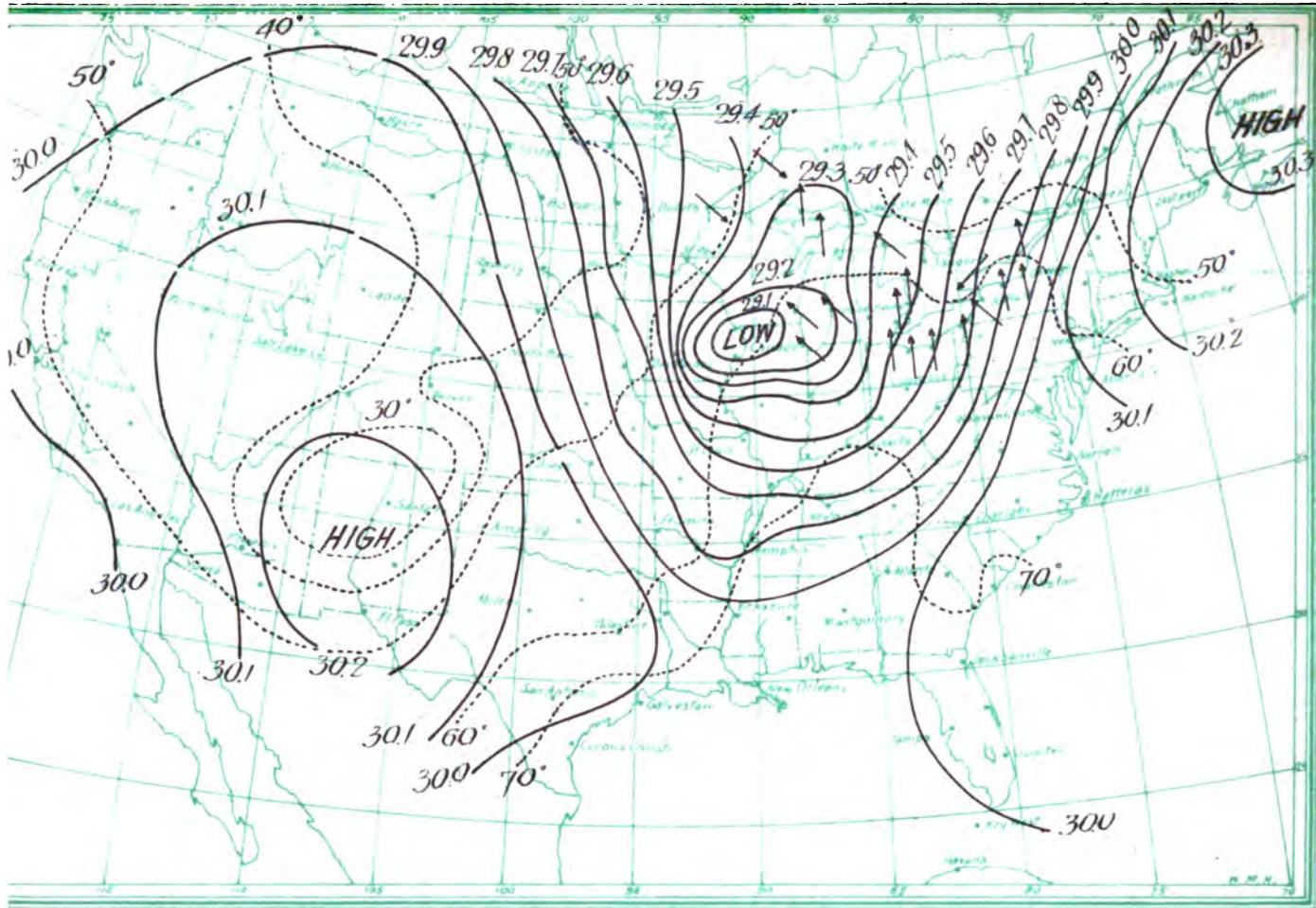


Chart DXOVI.

October 14, 1886—3 p. m.

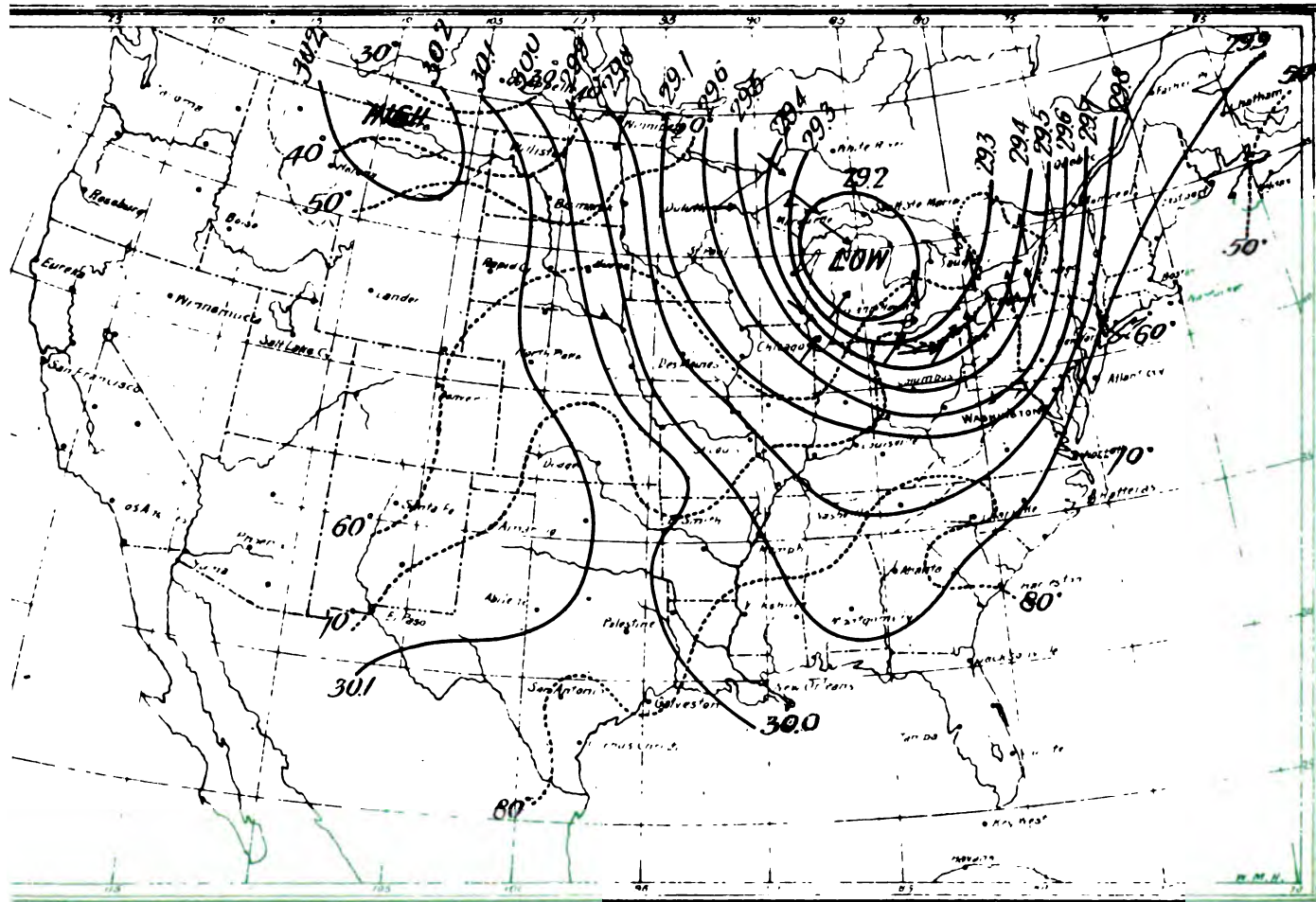


Chart DXOVII.

October 1, 1887—3 p. m.

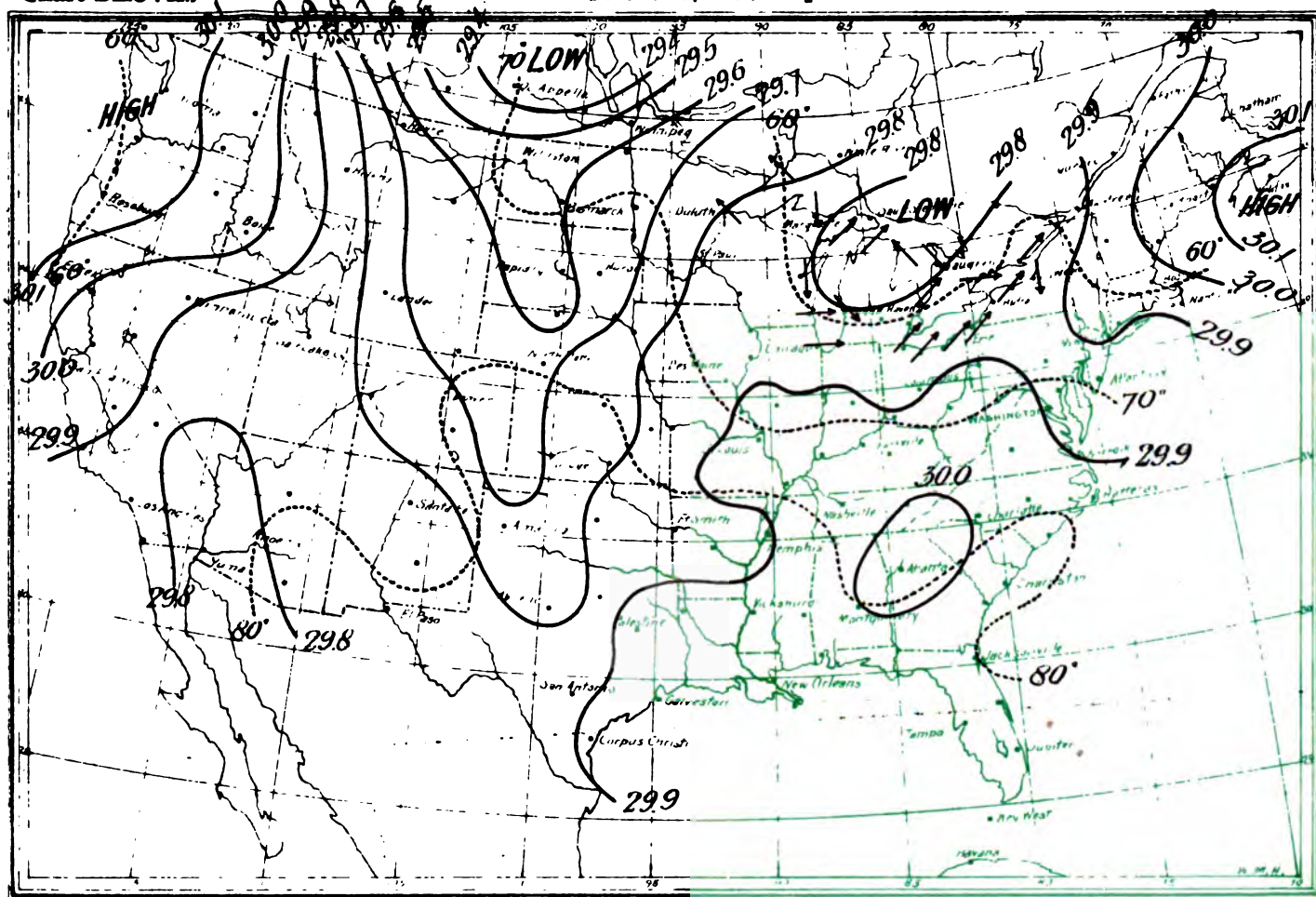


Chart DXOVIII.

October 2, 1887—7 a. m.

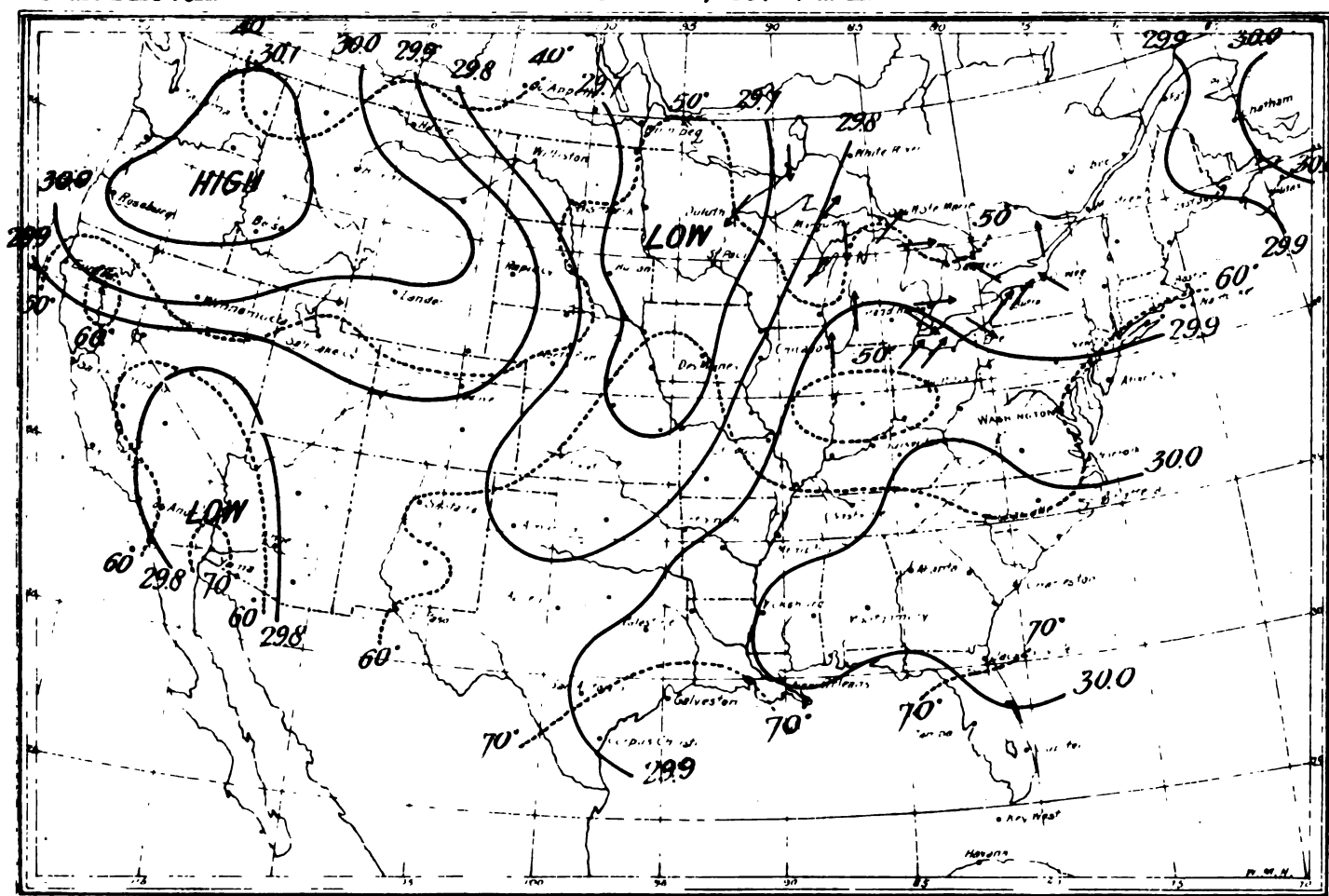


Chart DXOIX.

October 2, 1887—3 p. m.

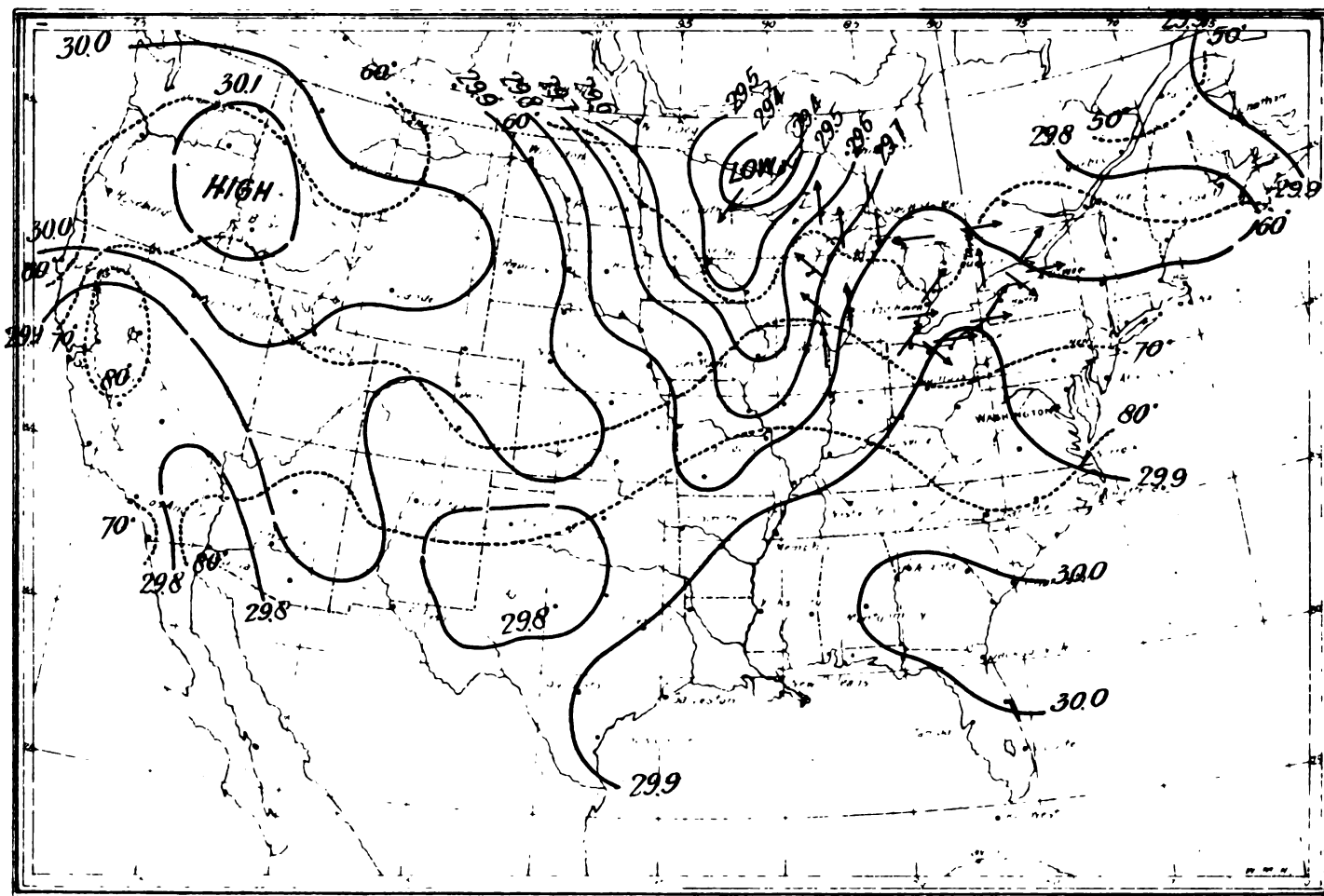


Chart DC.

October 3, 1887—7 a. m.

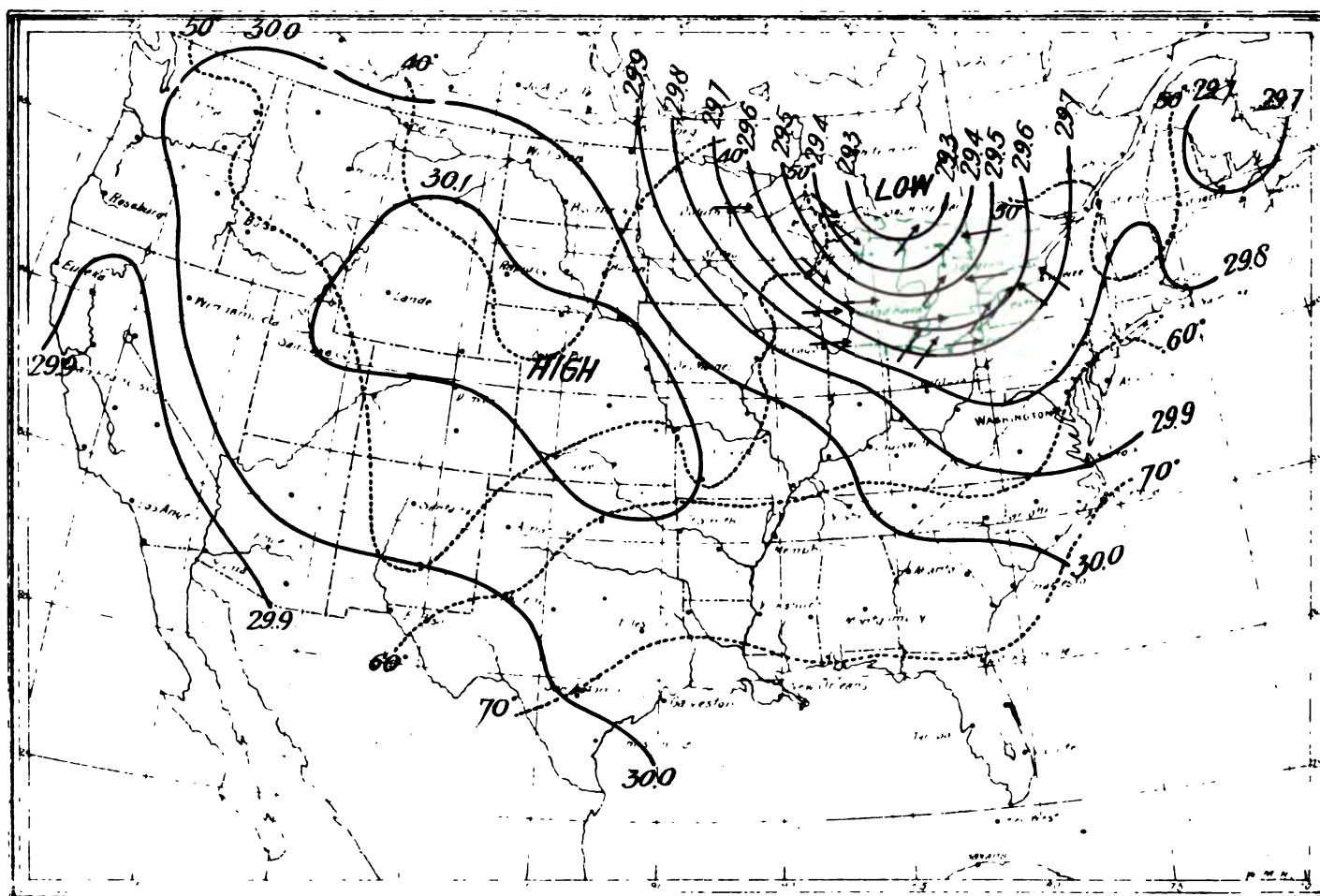


Chart DOL

October 22, 1887—8 p. m.

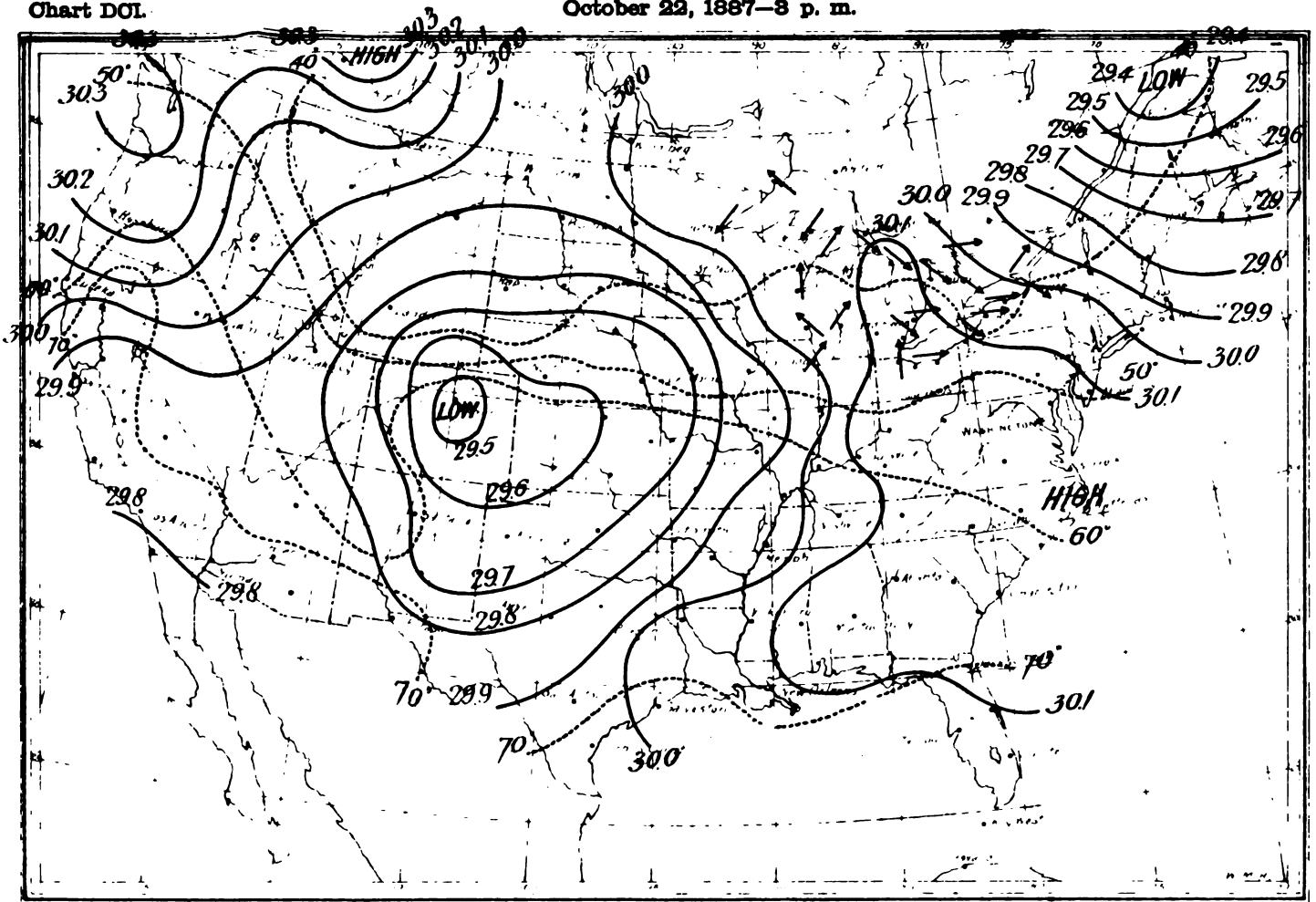


Chart DOLII.

October 23, 1887—7 a. m.

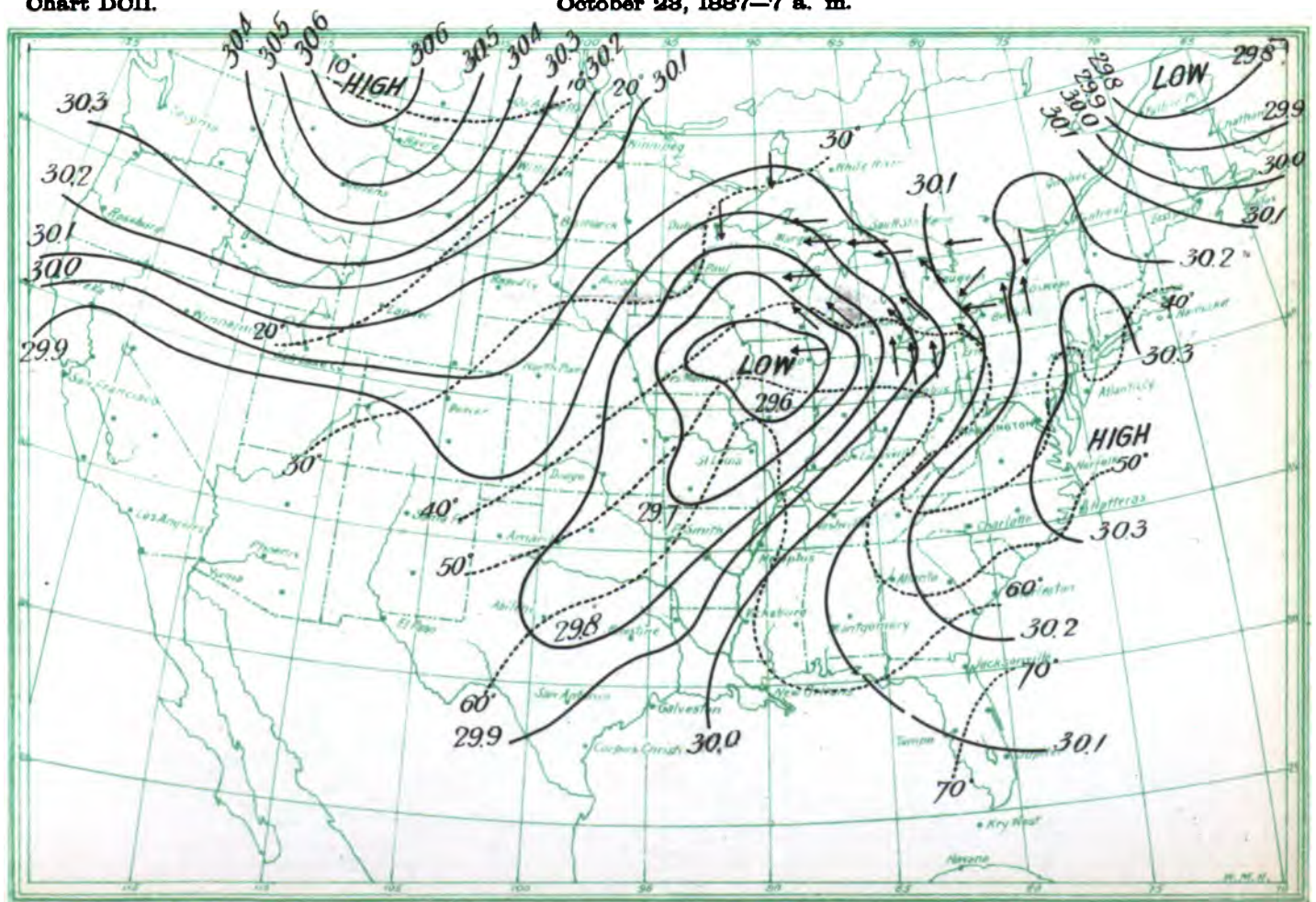


Chart DCM.

October 23, 1887—3 p. m.

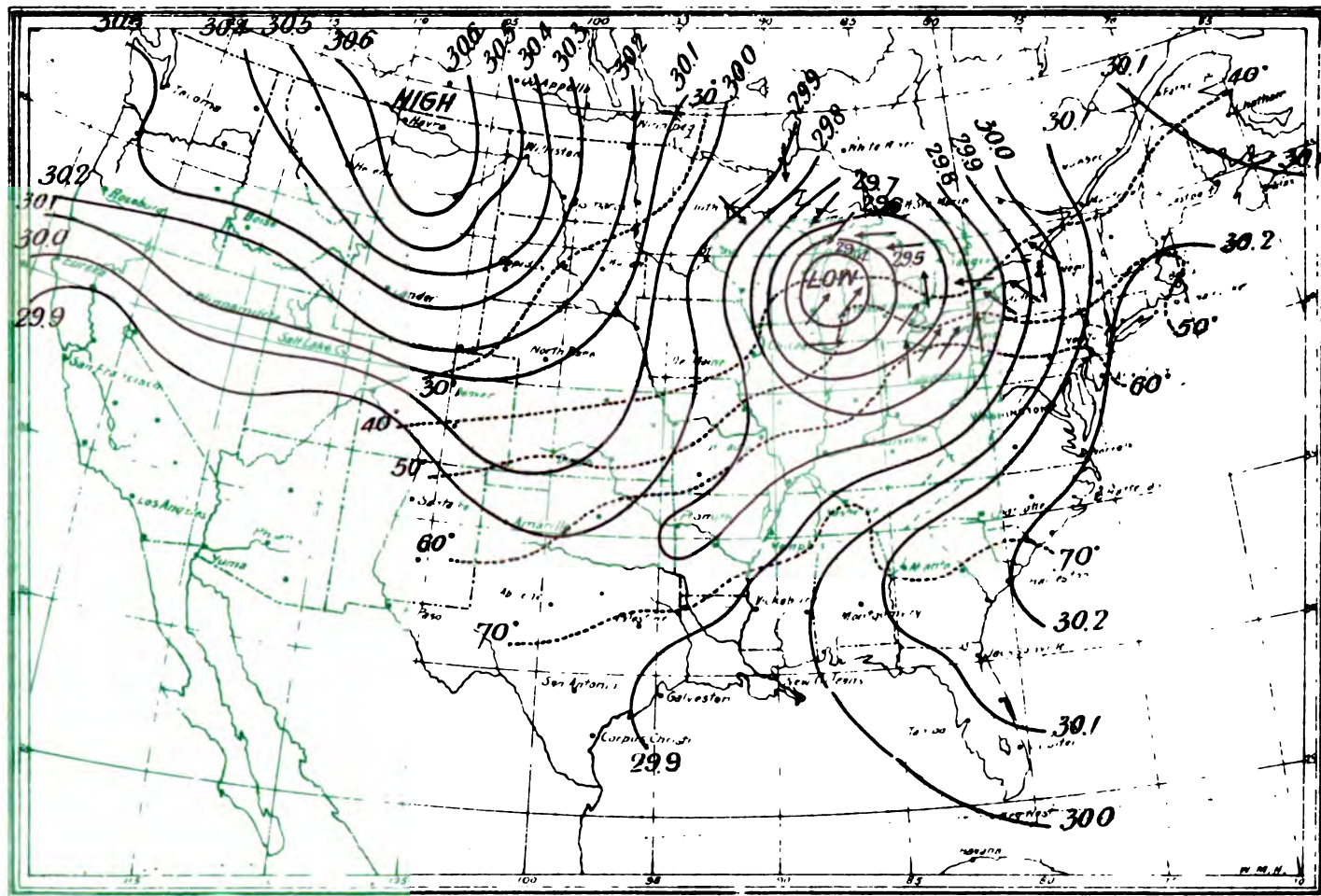


Chart DCMV.

October 24, 1887—7 a. m.

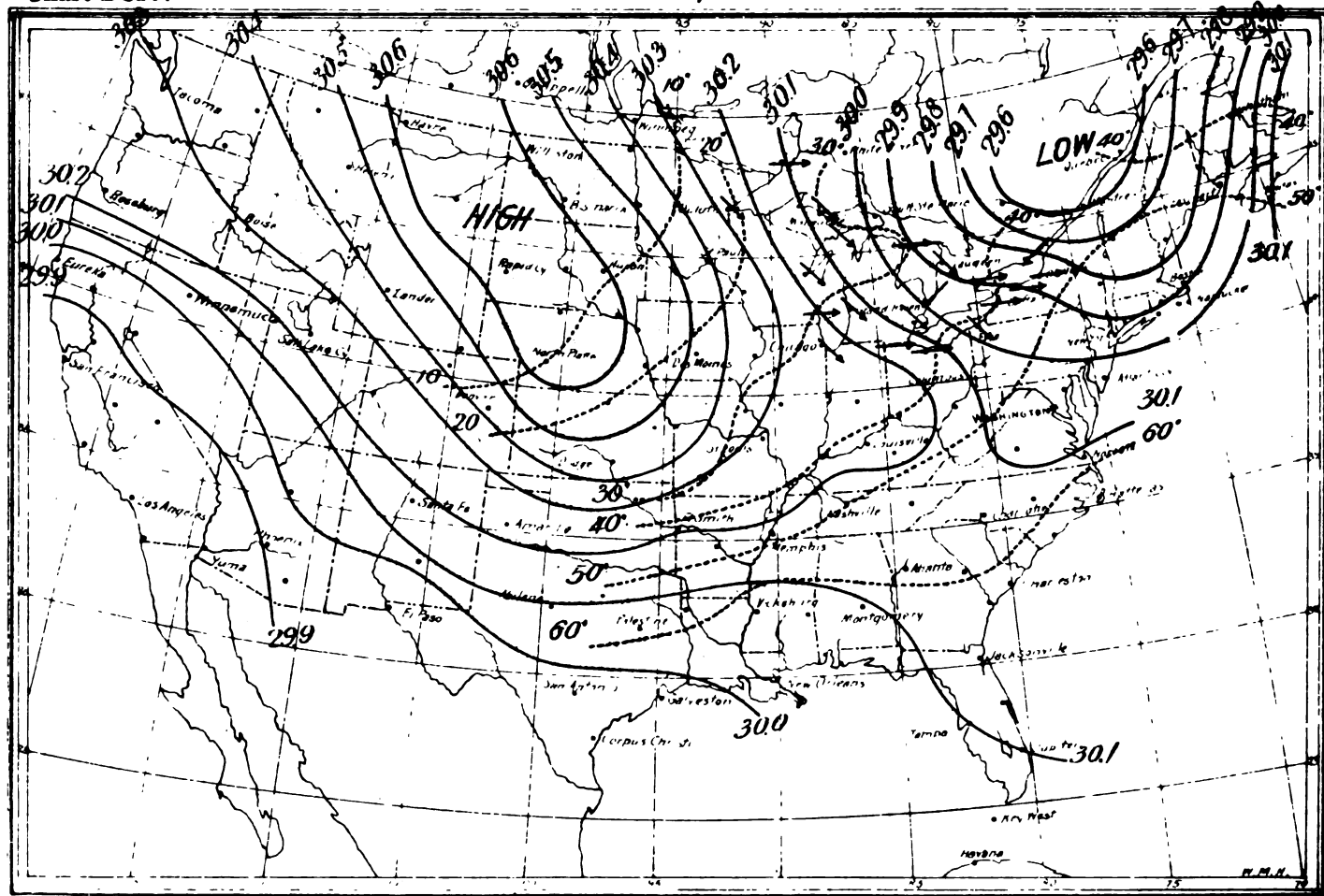


Chart DOV.

October 4, 1889—8 a. m.

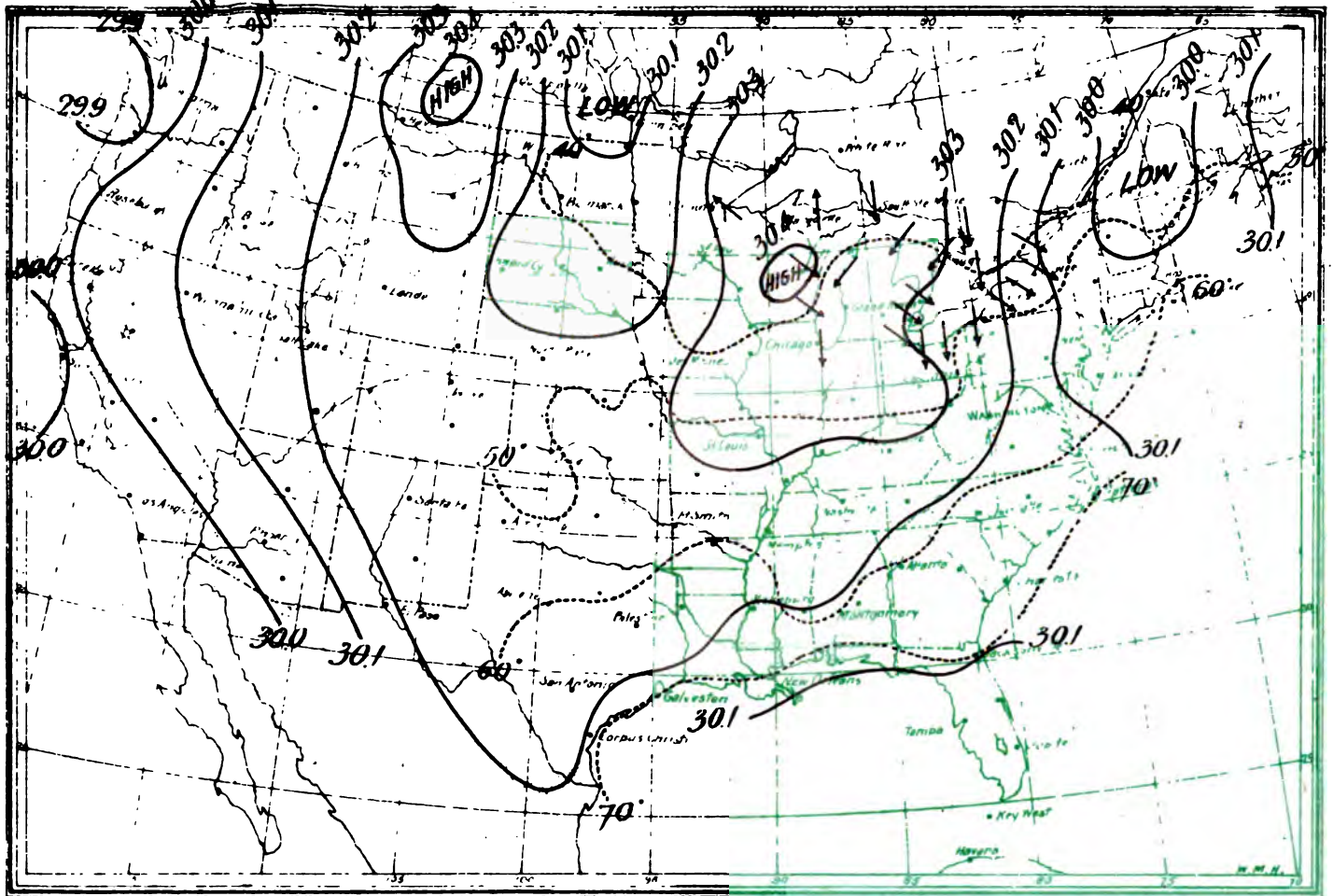


Chart DOVI.

October 4, 1889—8 p. m.

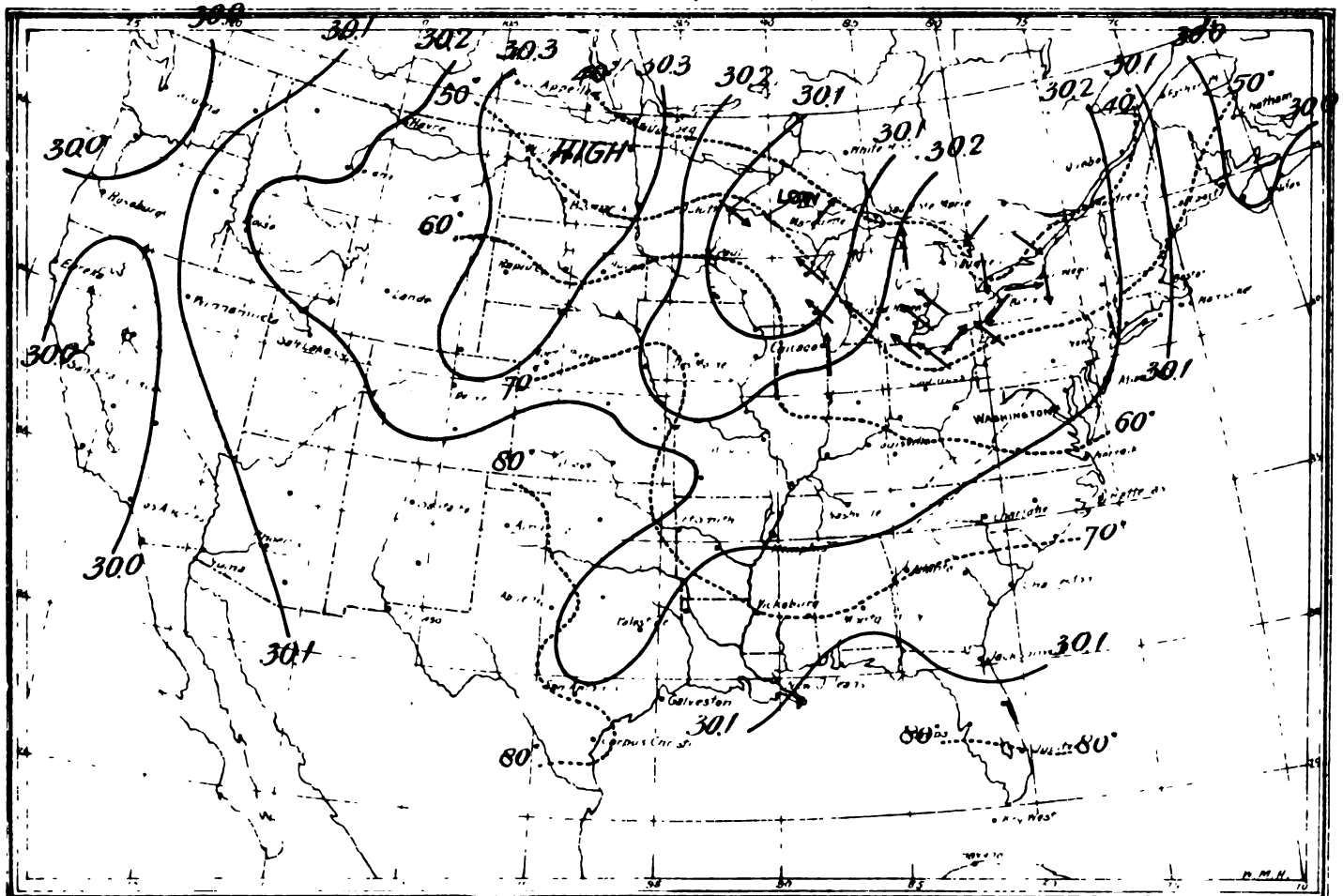


Chart DCVII.

October 5, 1889—8 a. m.

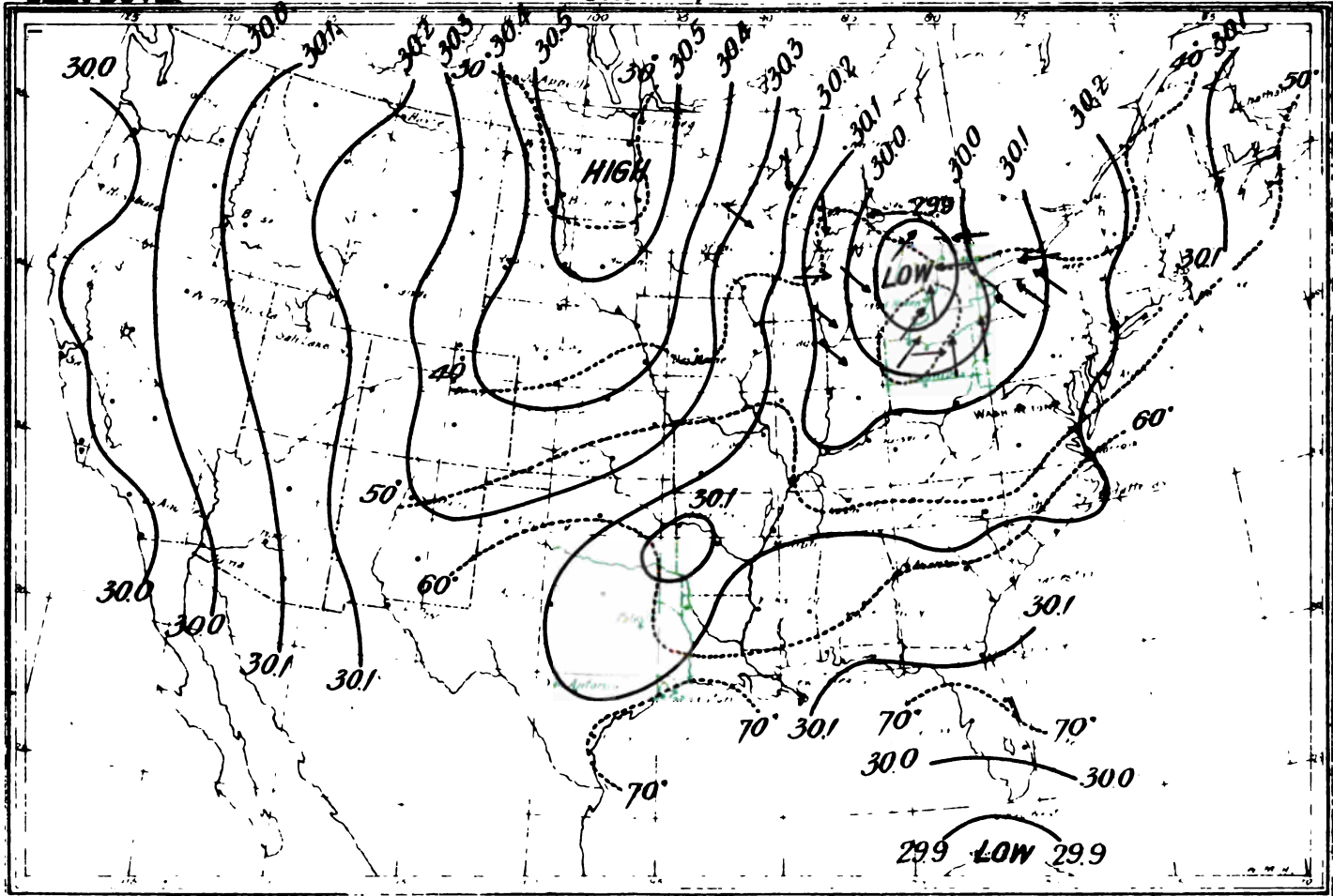


Chart DCVIII.

October 5, 1889—8 p. m.

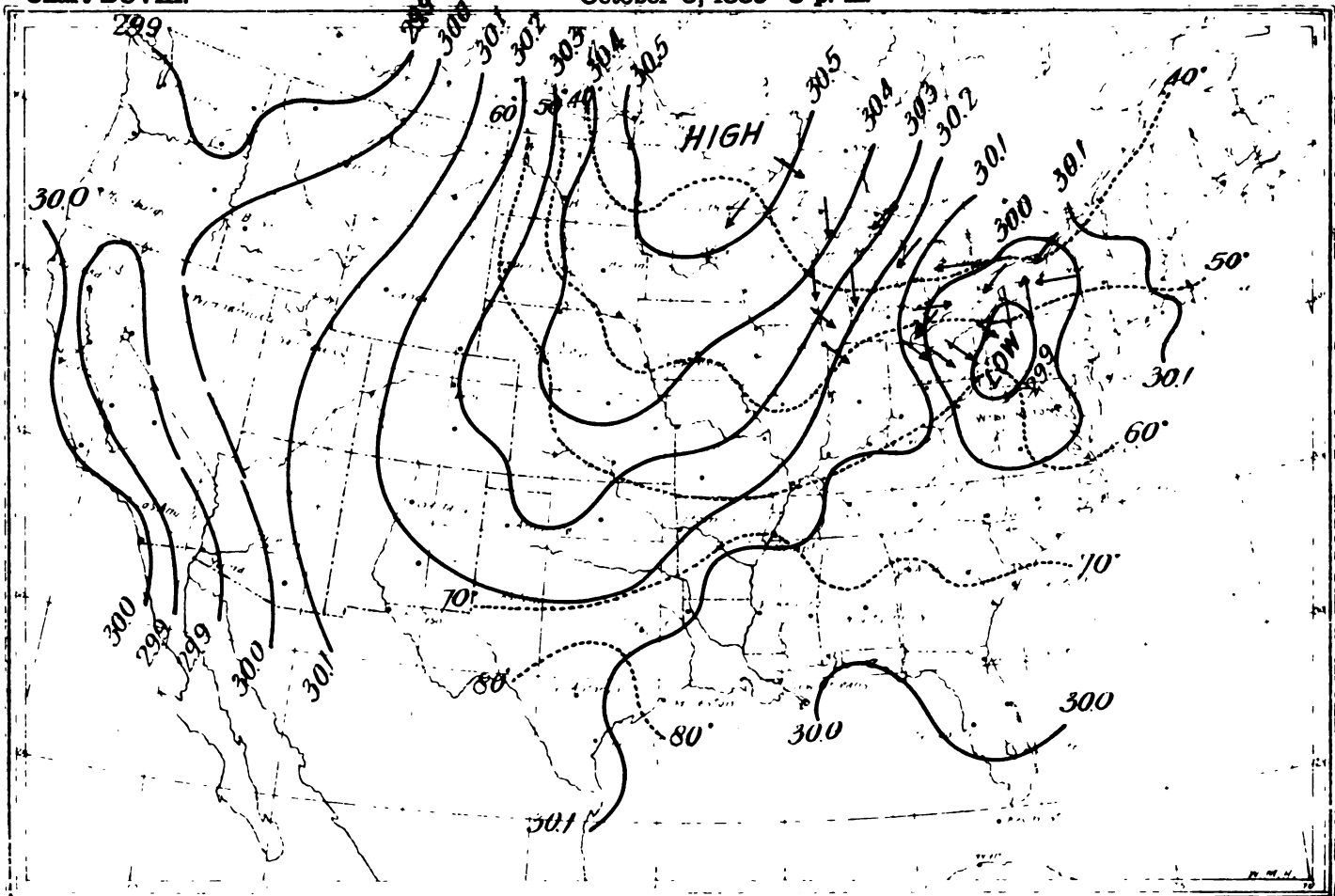


Chart DOIX.

October 12, 1890—8 a. m.

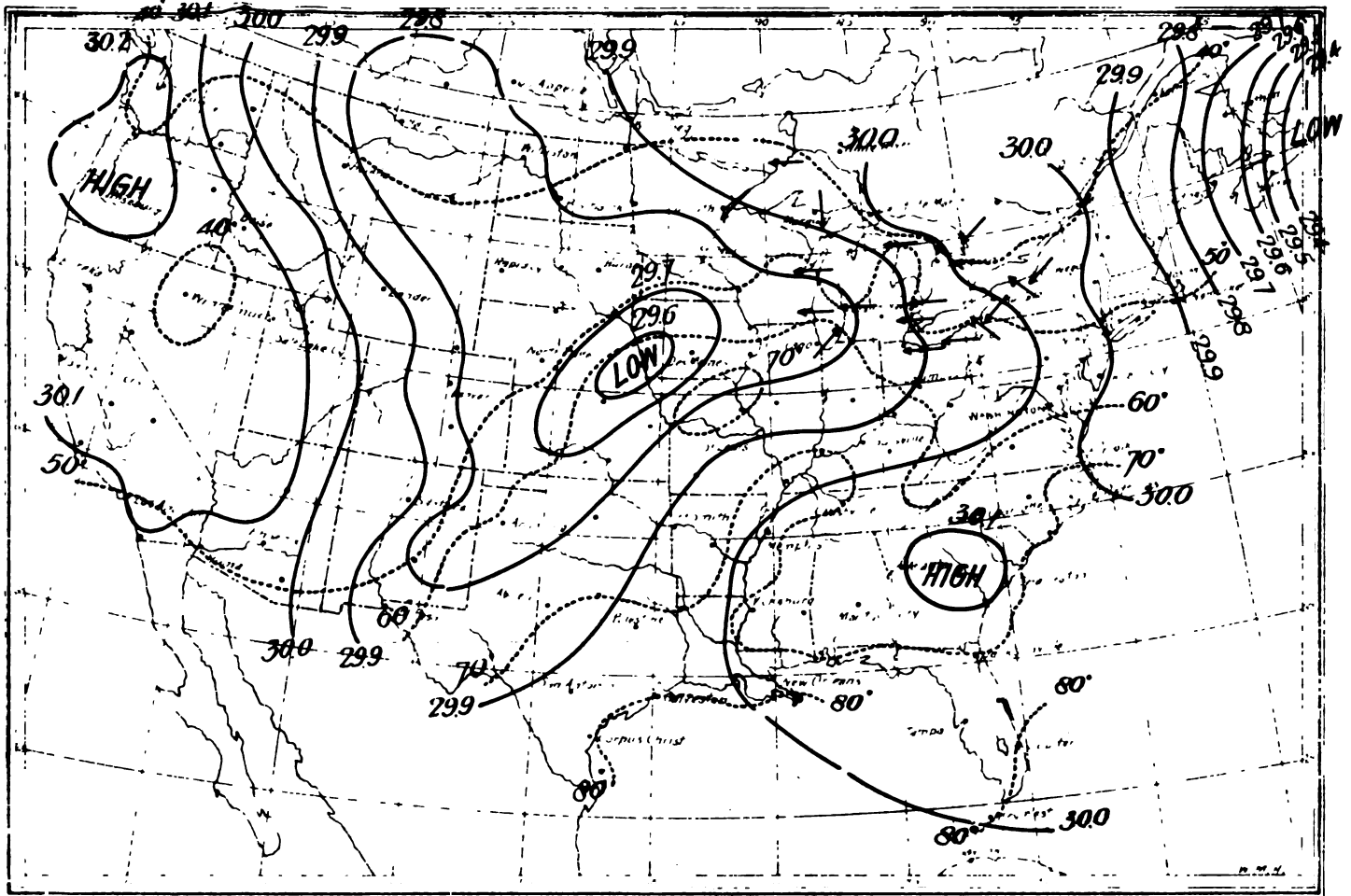


Chart DOX.

October 12, 1890—8 p. m.

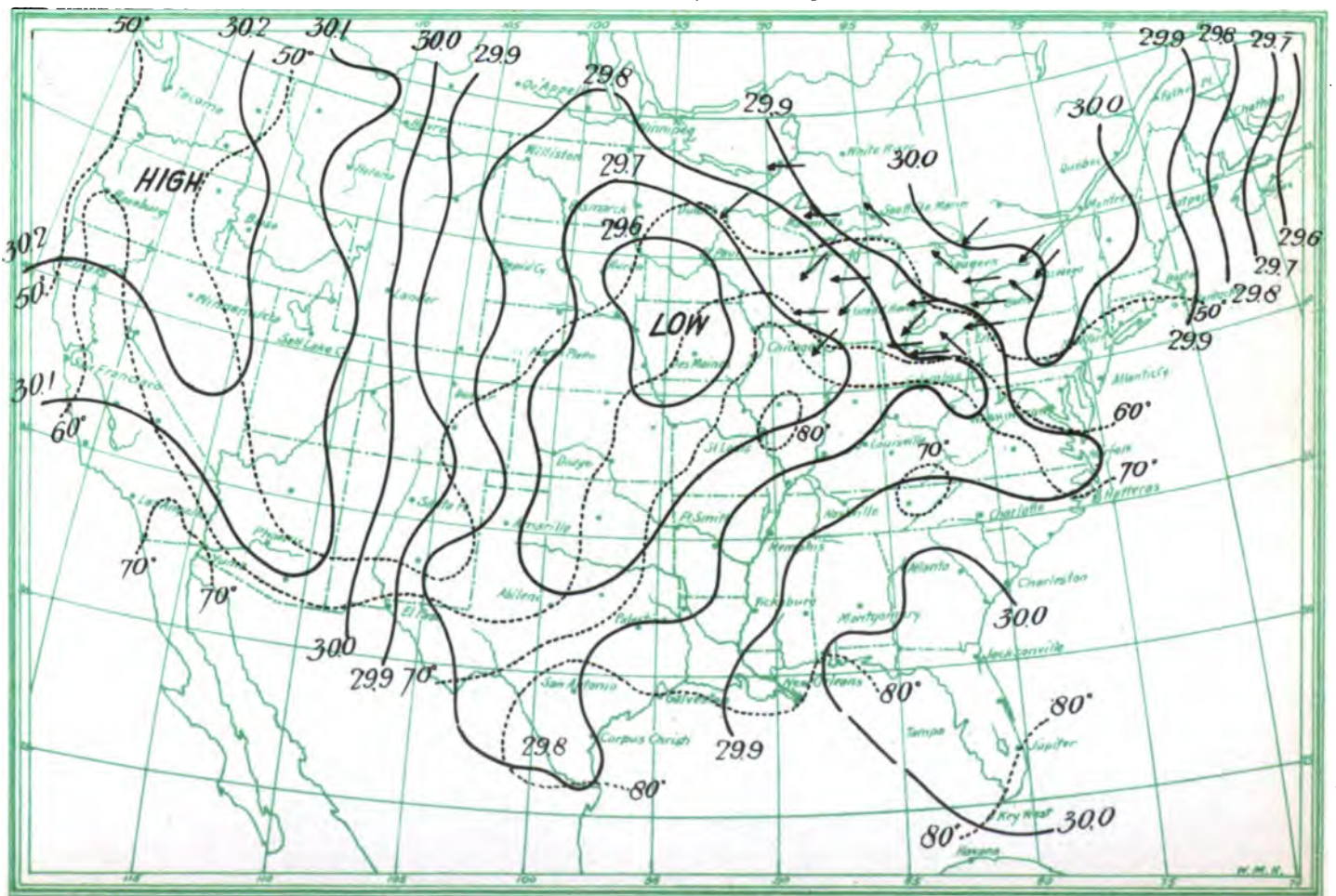


Chart DOXI.

October 13, 1890—8 a. m.

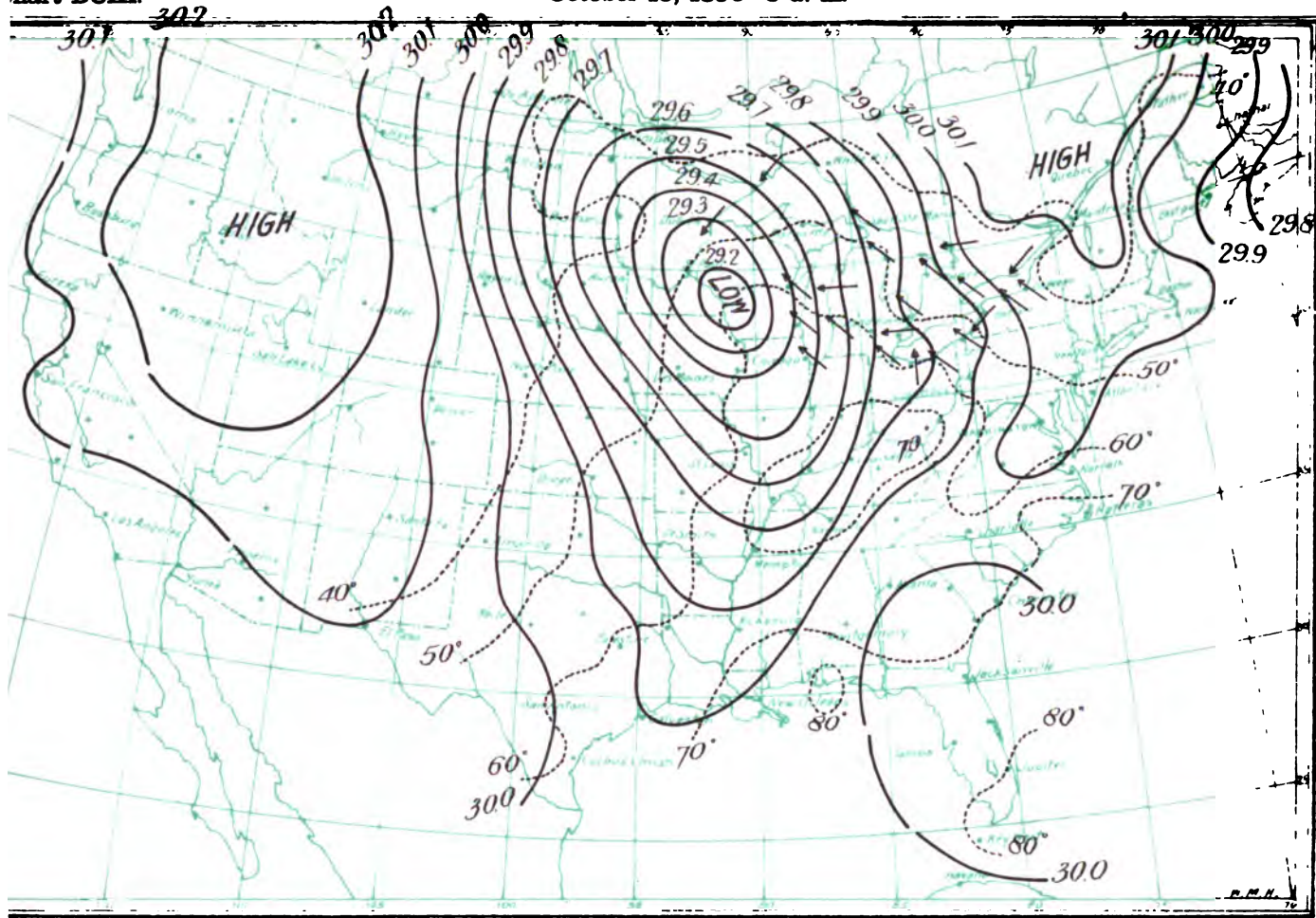


Chart DOXII.

October 13, 1890—8 p. m.

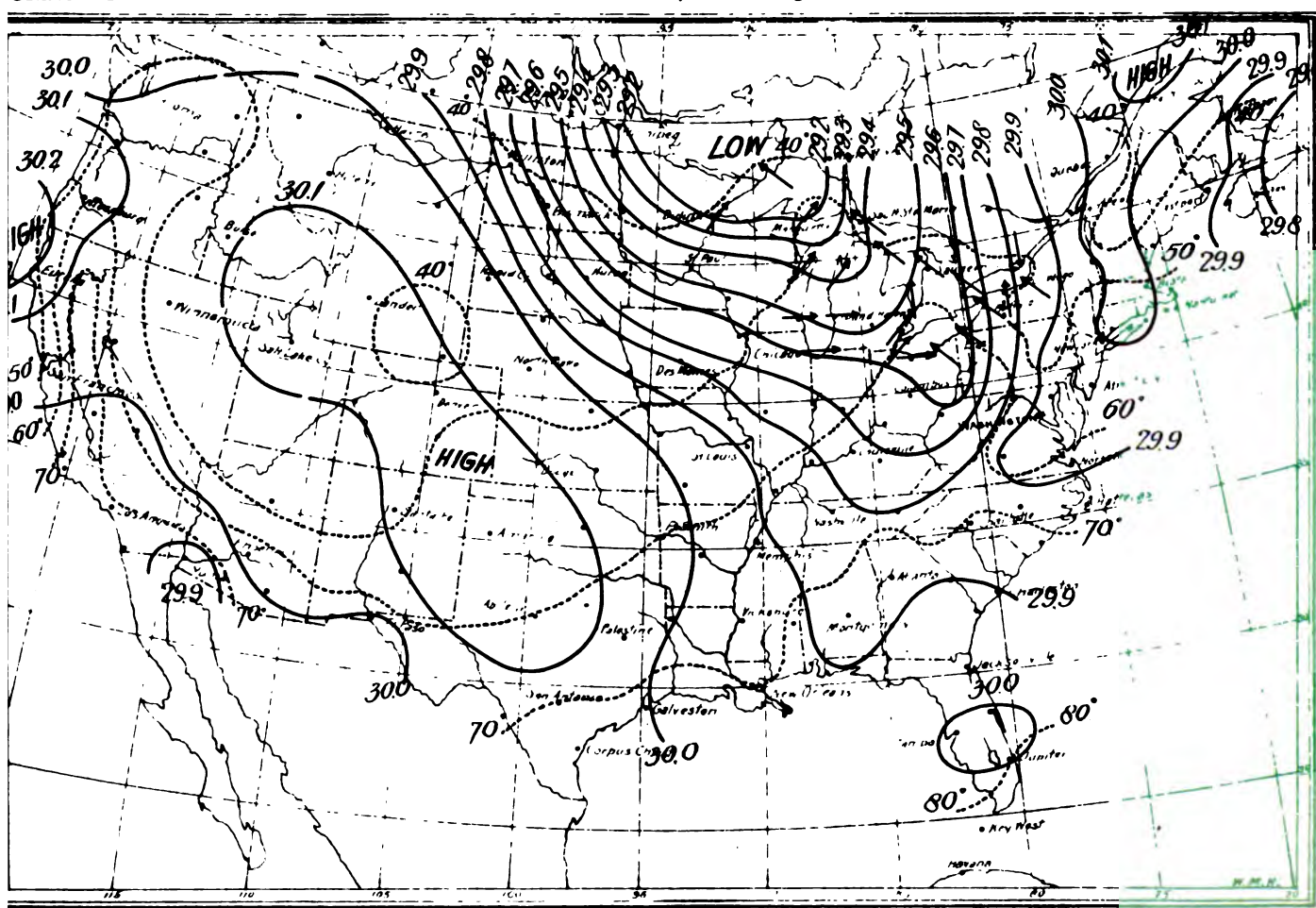


Chart DOXIII.

October 24, 1891—8 p. m.

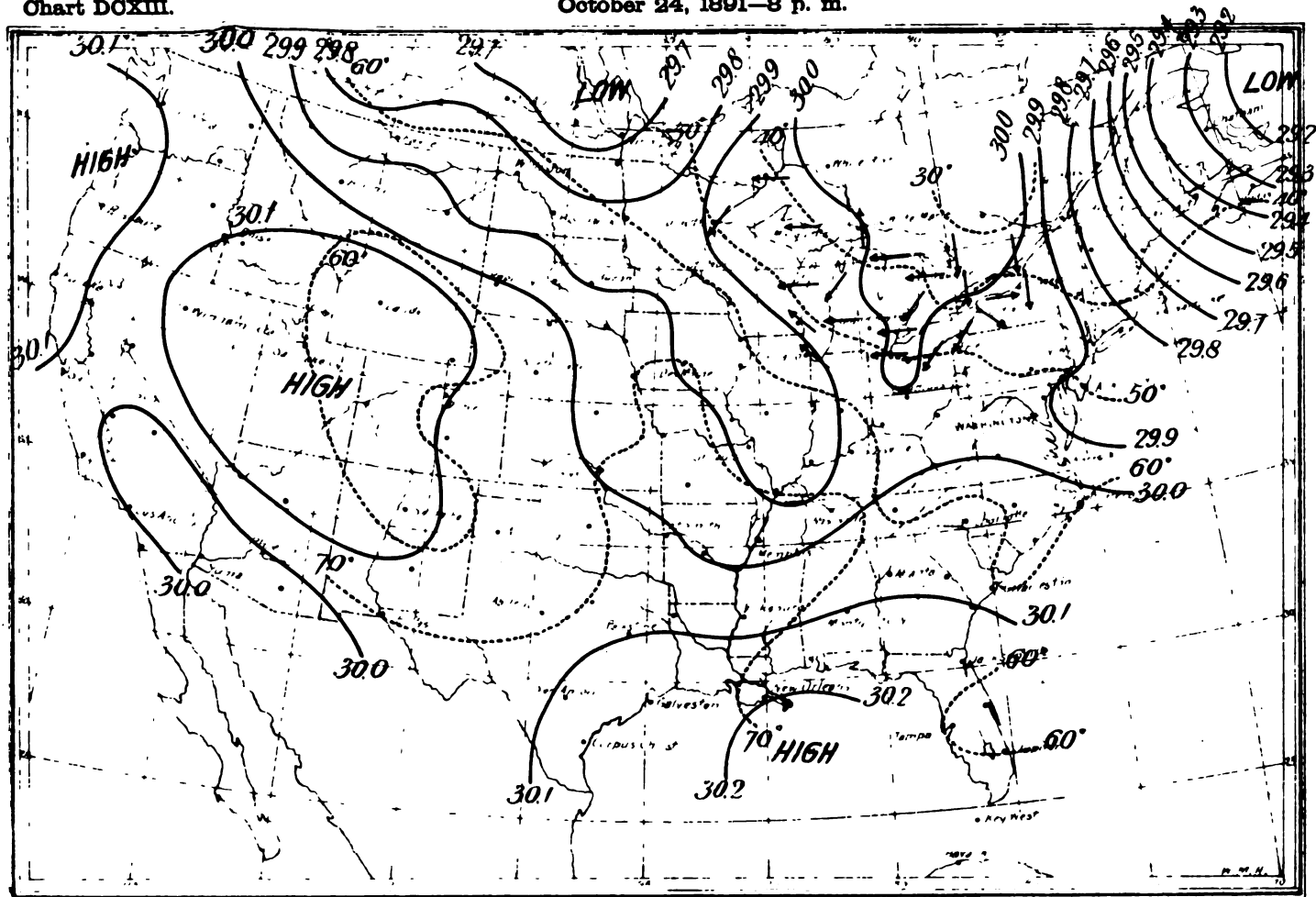


Chart DOXIV.

October 25, 1891—8 a. m.

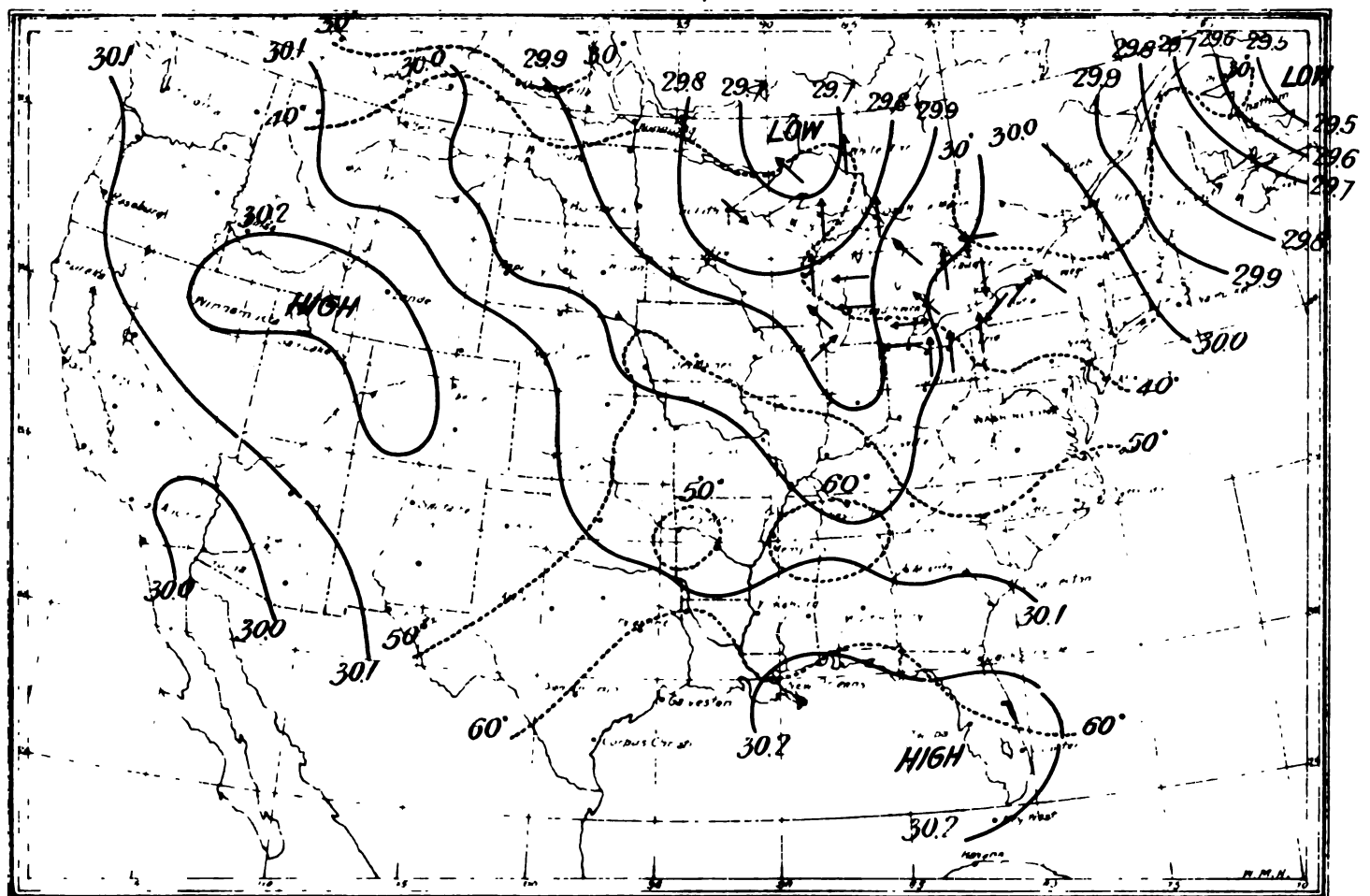


Chart DOXV.

October 25, 1891—8 p. m.

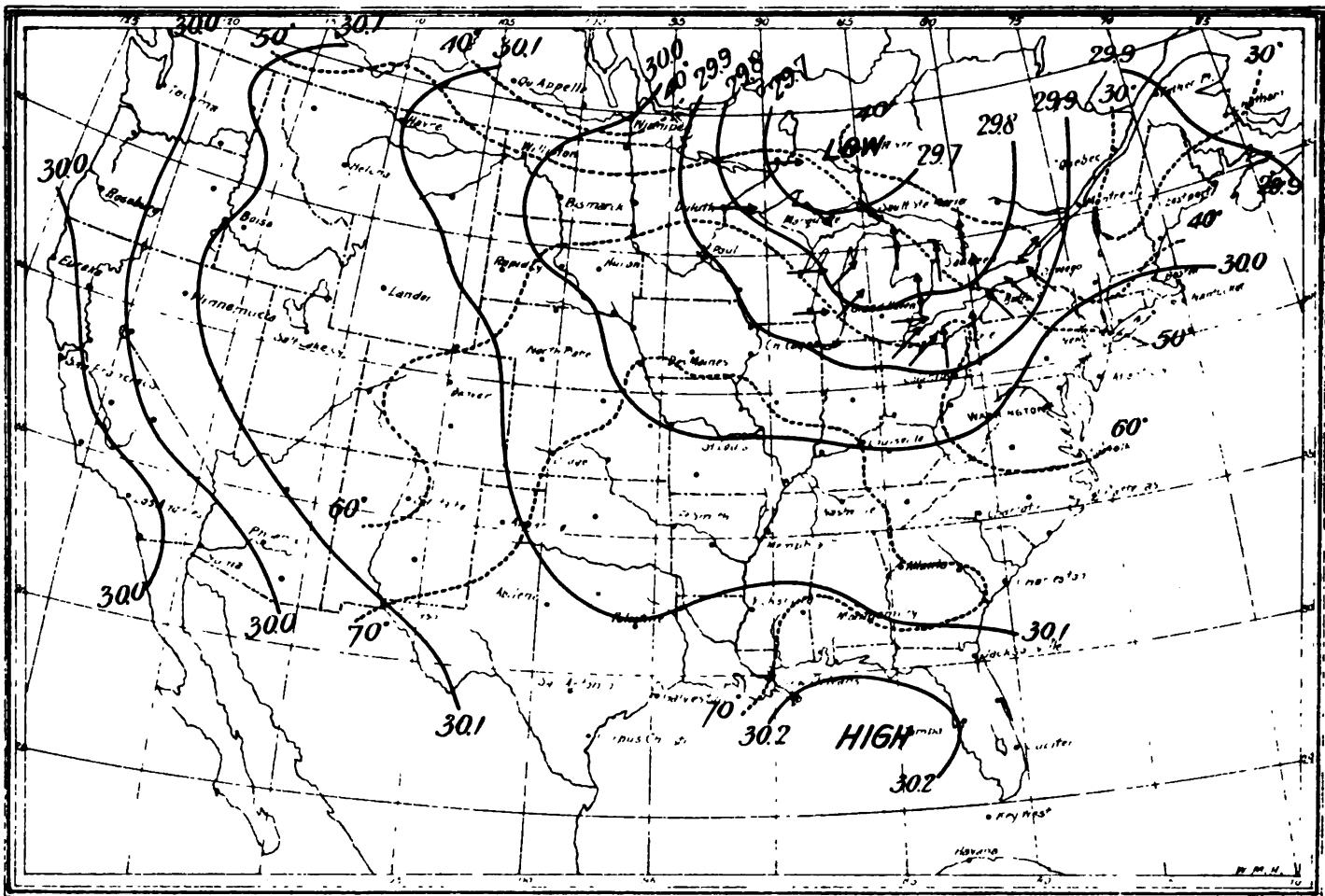


Chart DOXVI.

October 26, 1891—8 a. m.

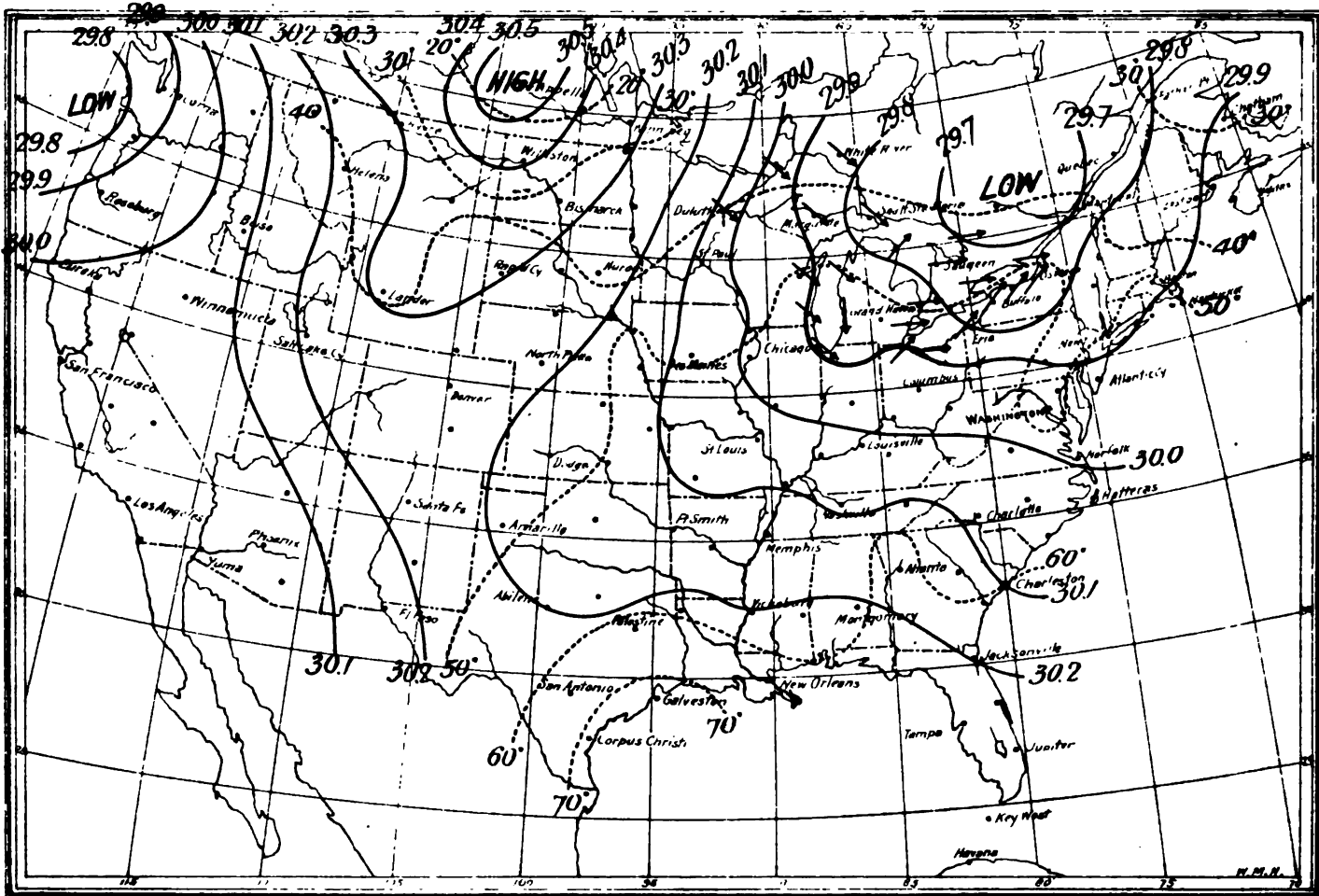


Chart DOXVII.

October 30, 1891—8 a. m.

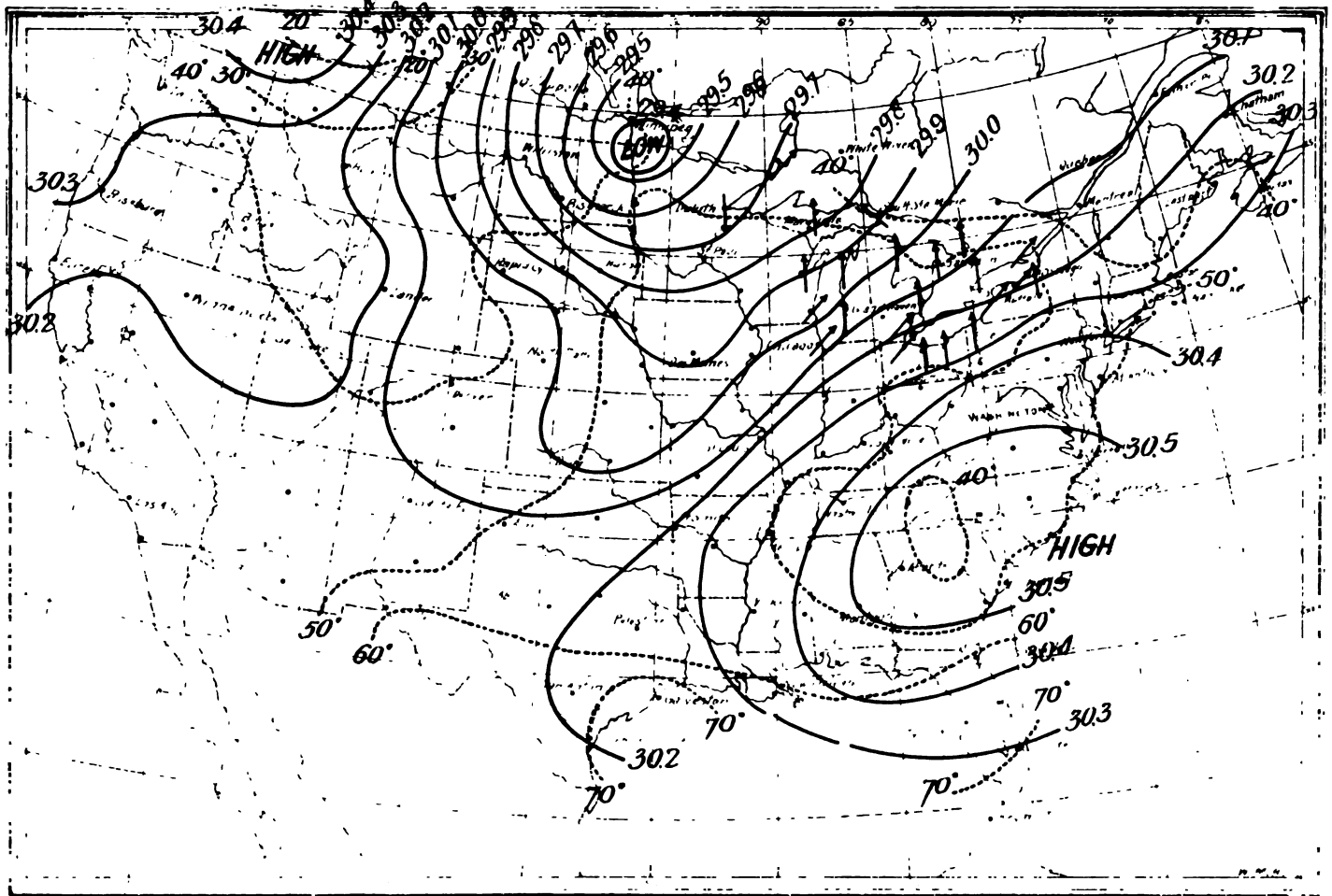


Chart DOXVIII.

October 30, 1891—8 p. m.

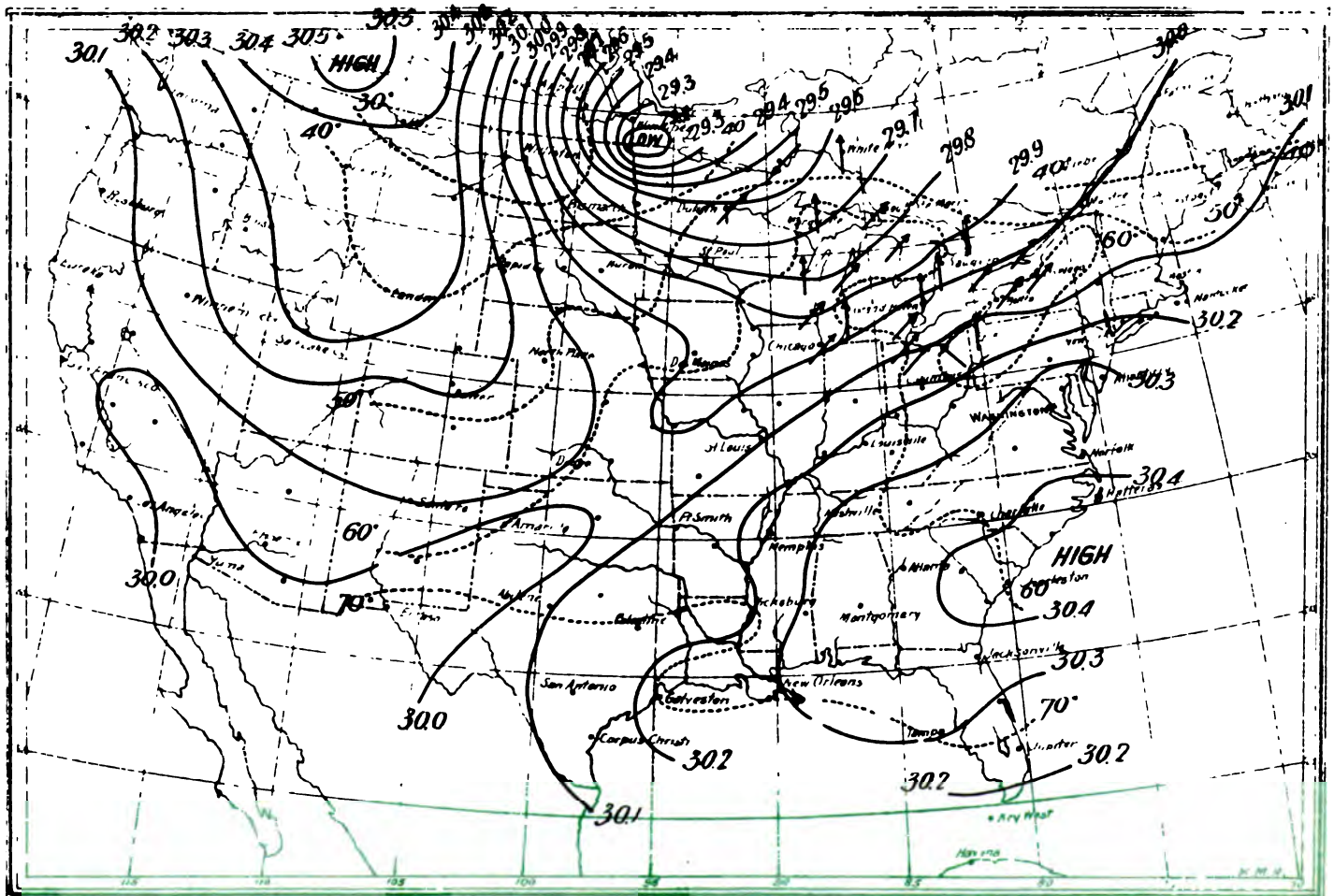


Chart DOXIX.

October 31, 1891—8 a. m.

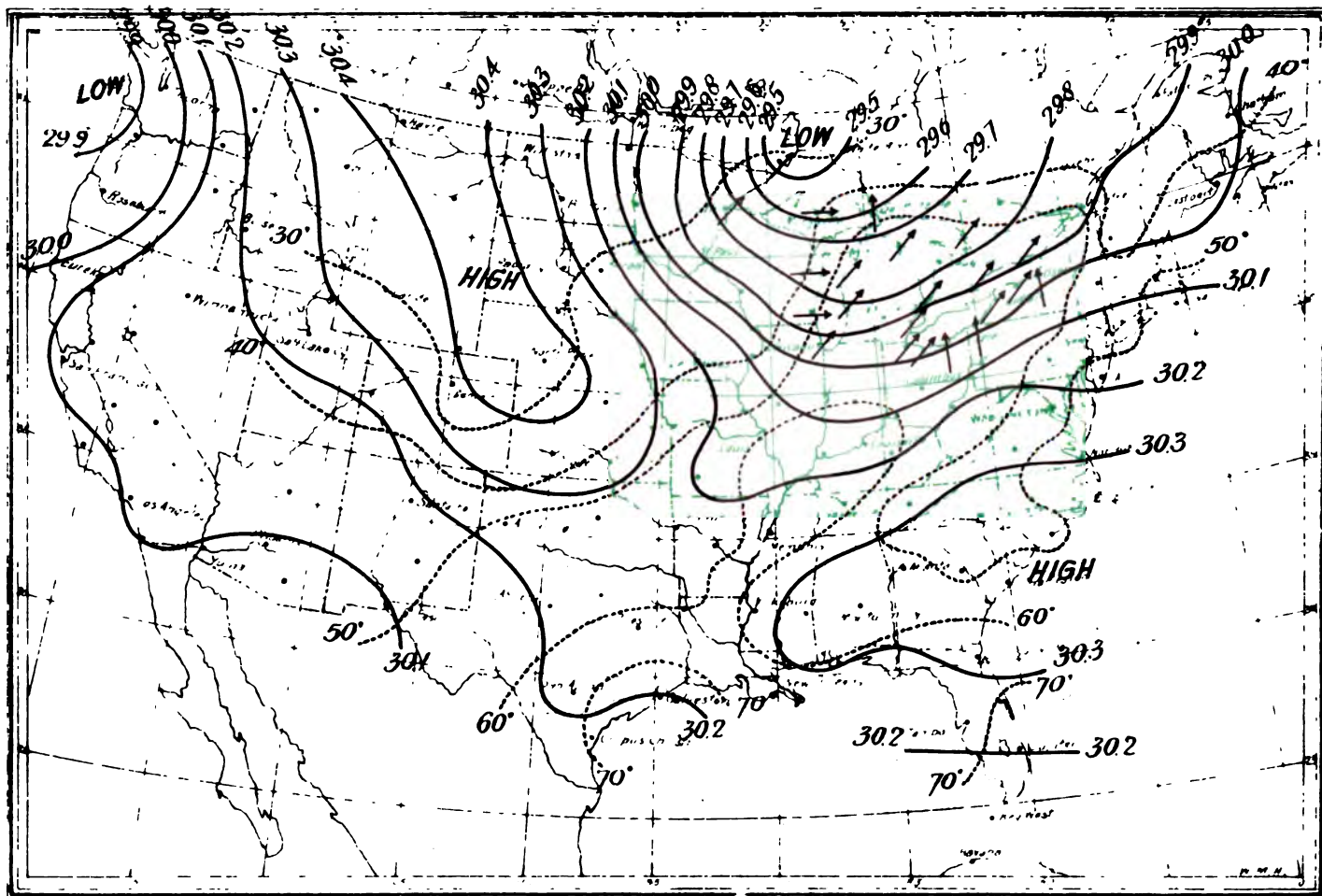


Chart DOXX.

October 31, 1891—8 p. m.

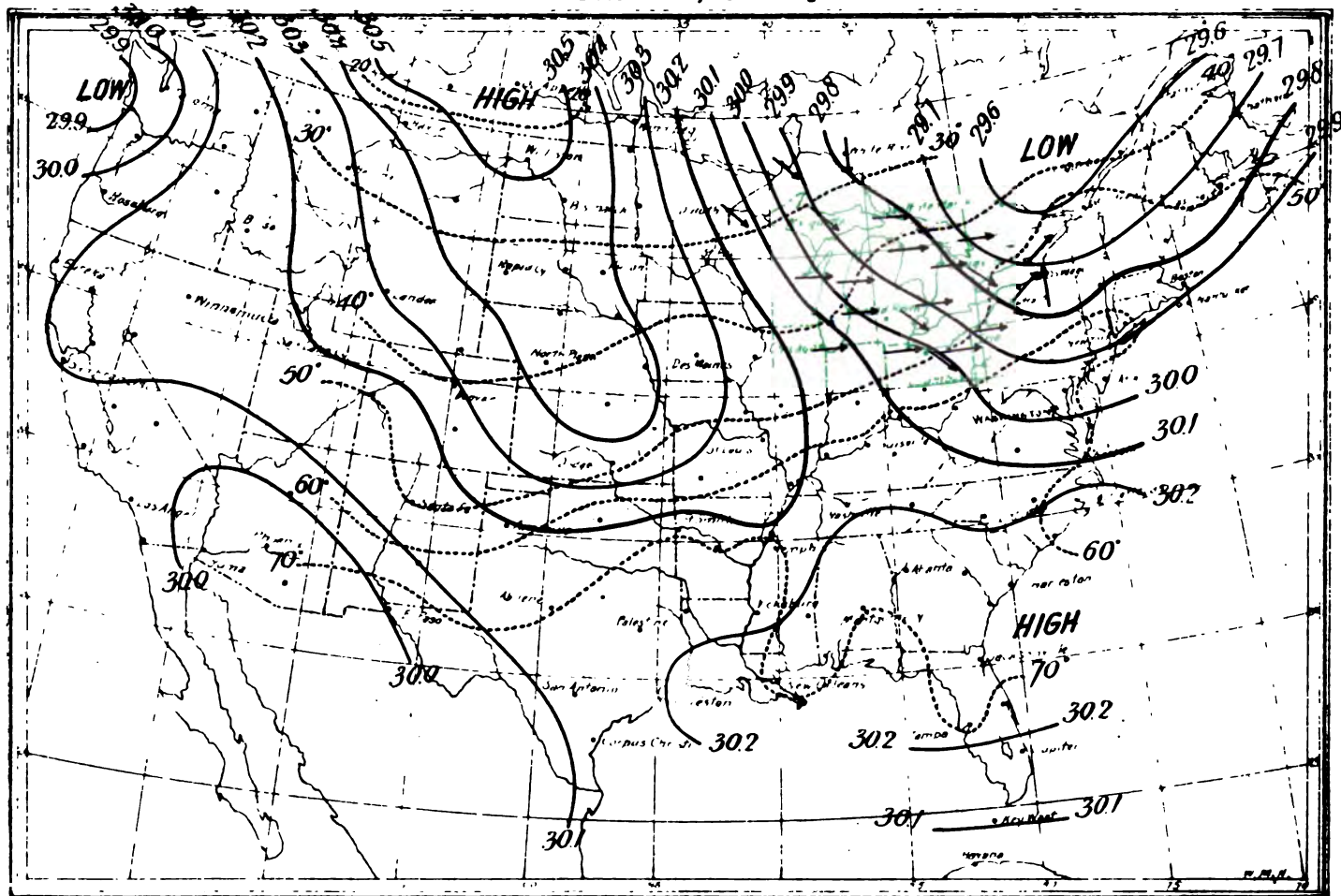


Chart DOXXI.

October 27, 1892—8 p. m.

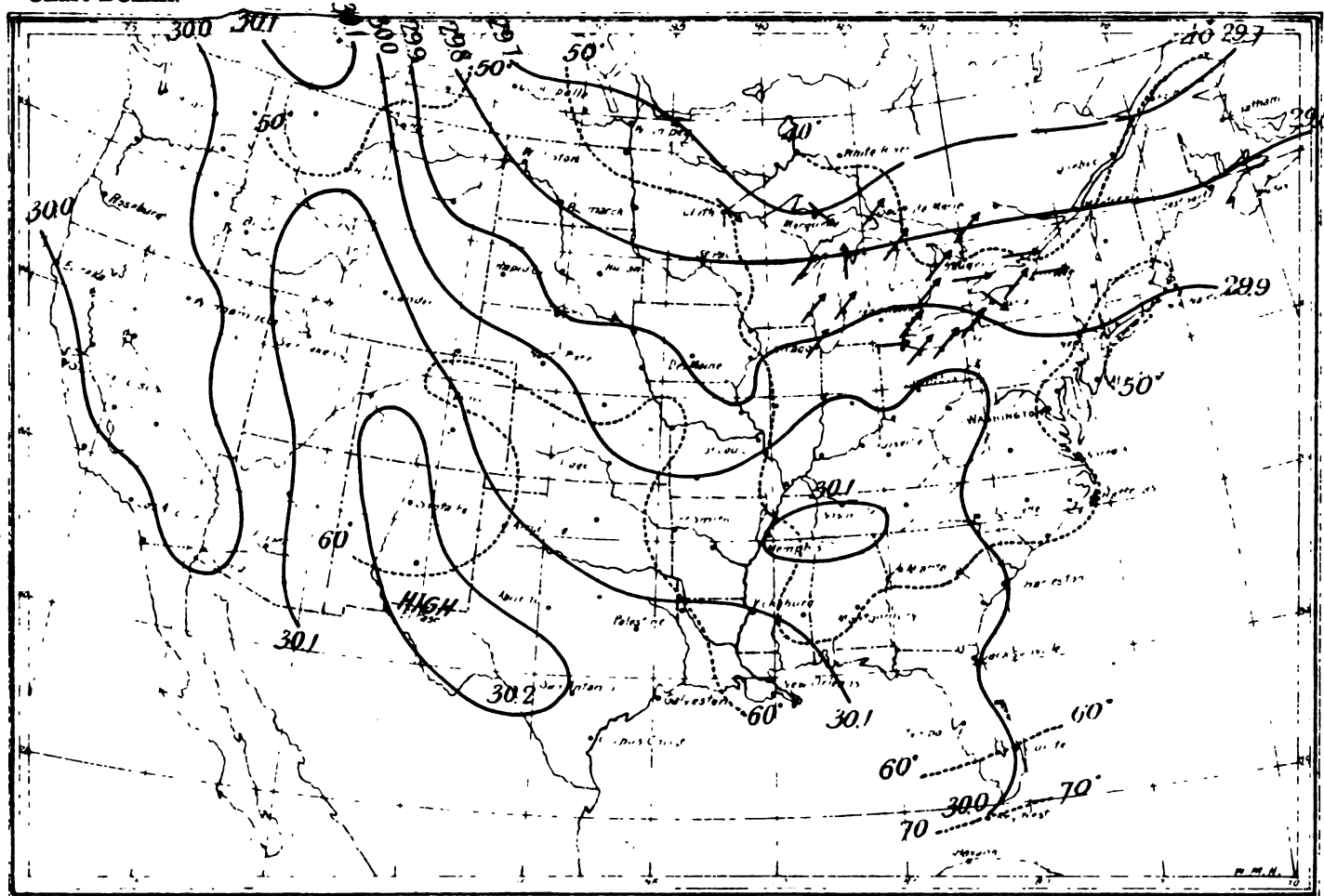


Chart DOXXII.

October 28, 1892—8 a. m.

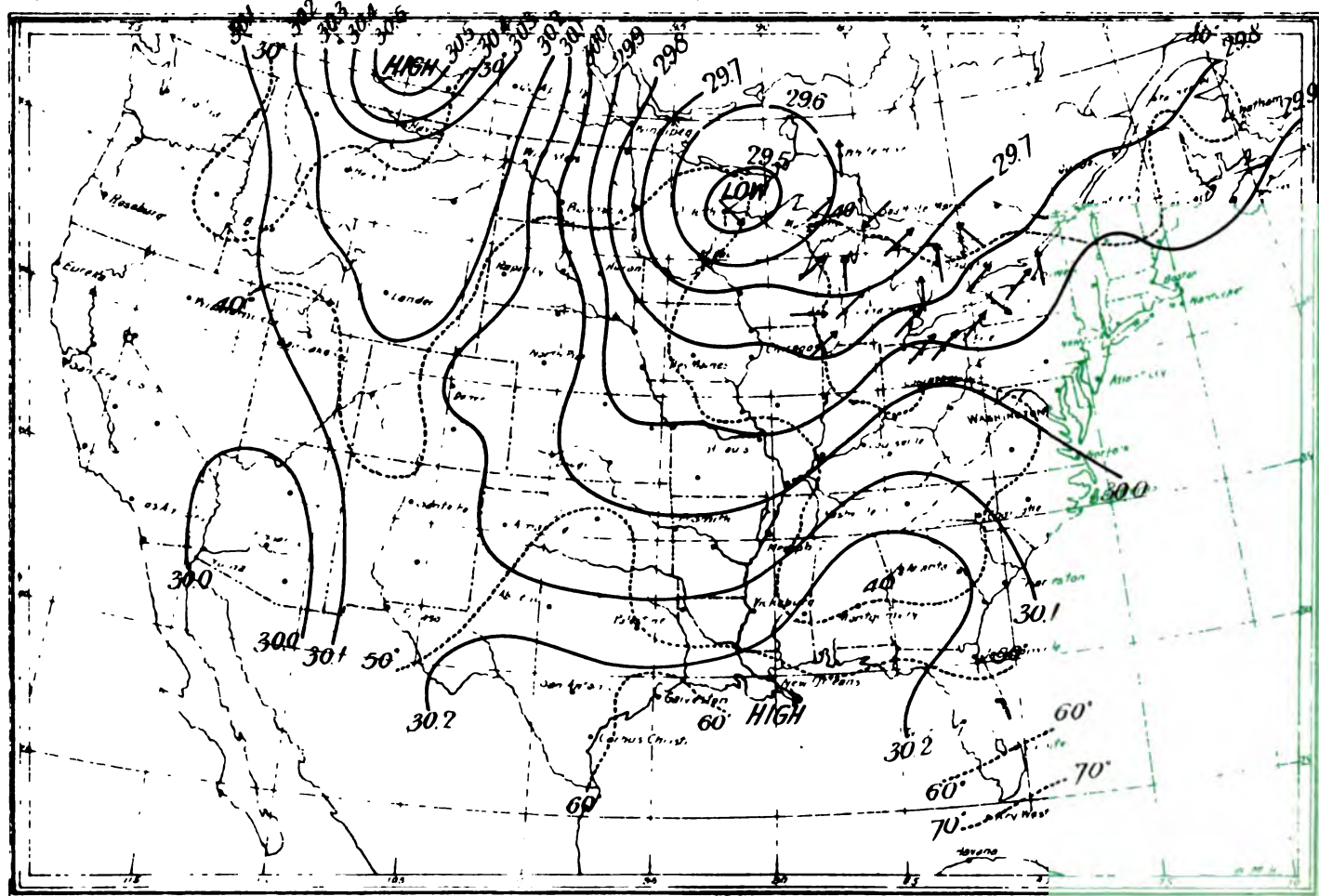


Chart DOXXIII.

October 28, 1892—8 p. m.

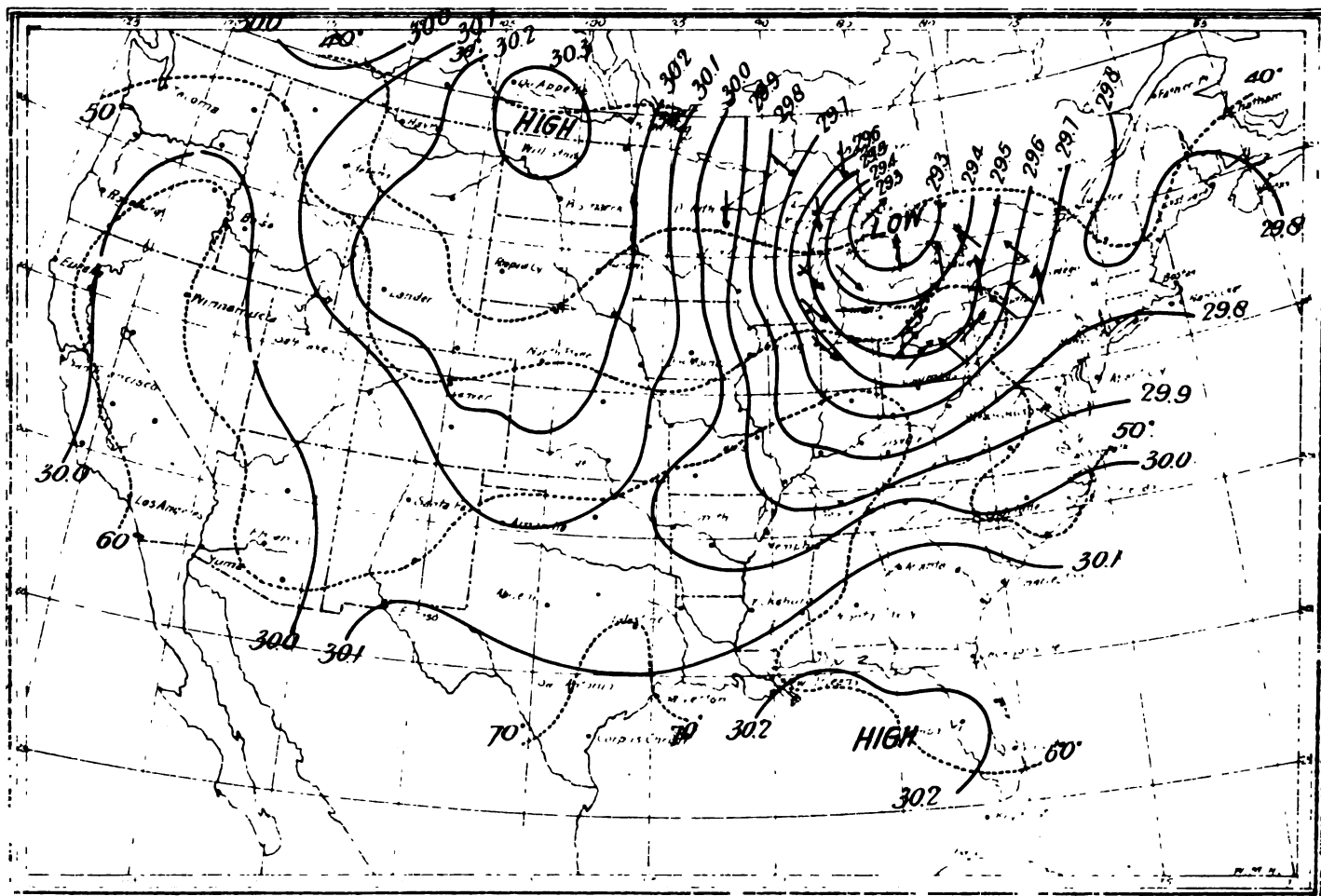


Chart DOXXIV.

October 29, 1892—8 a. m.

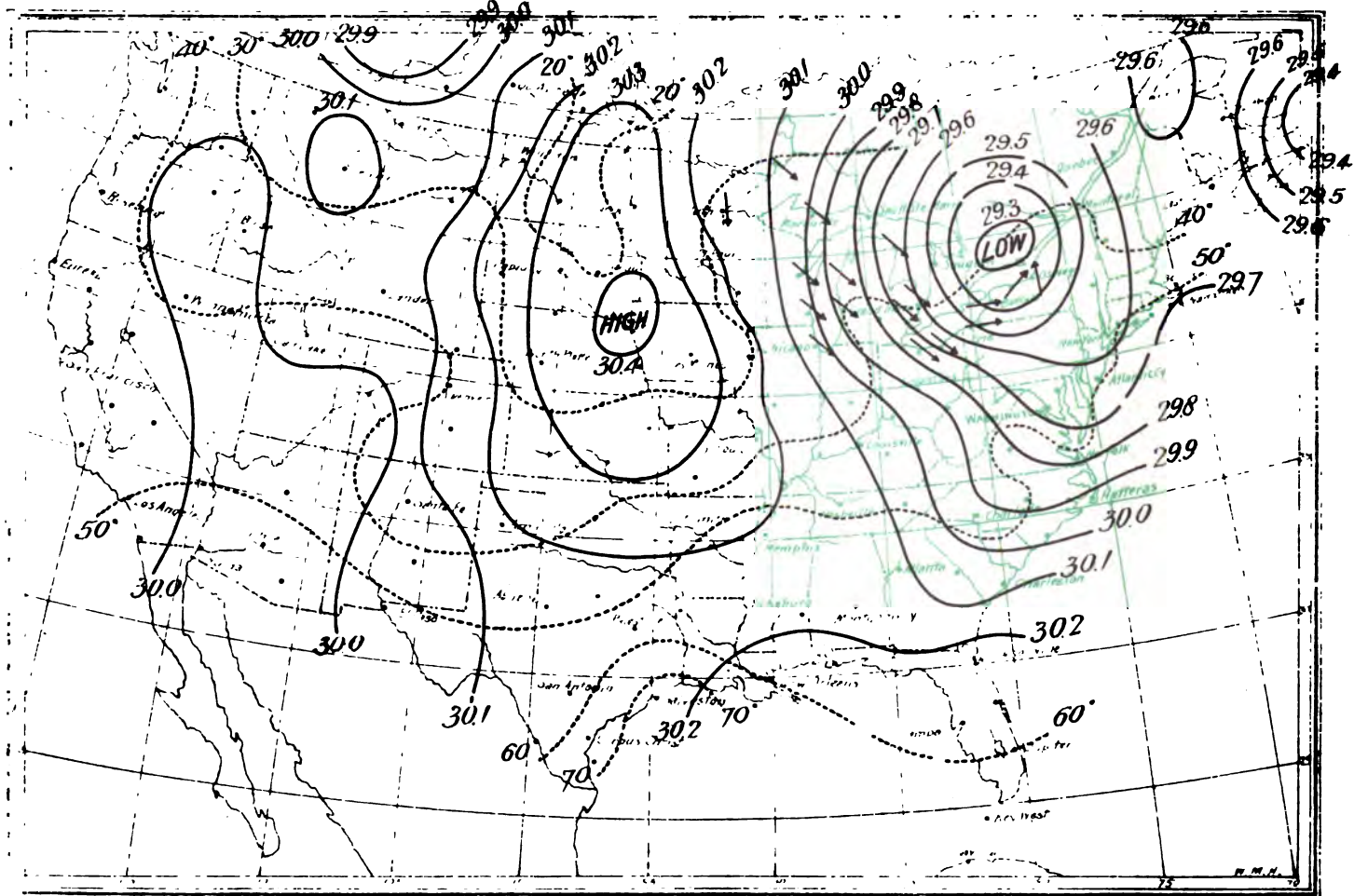


Chart DOXXV.

October 18, 1898—8 a. m.

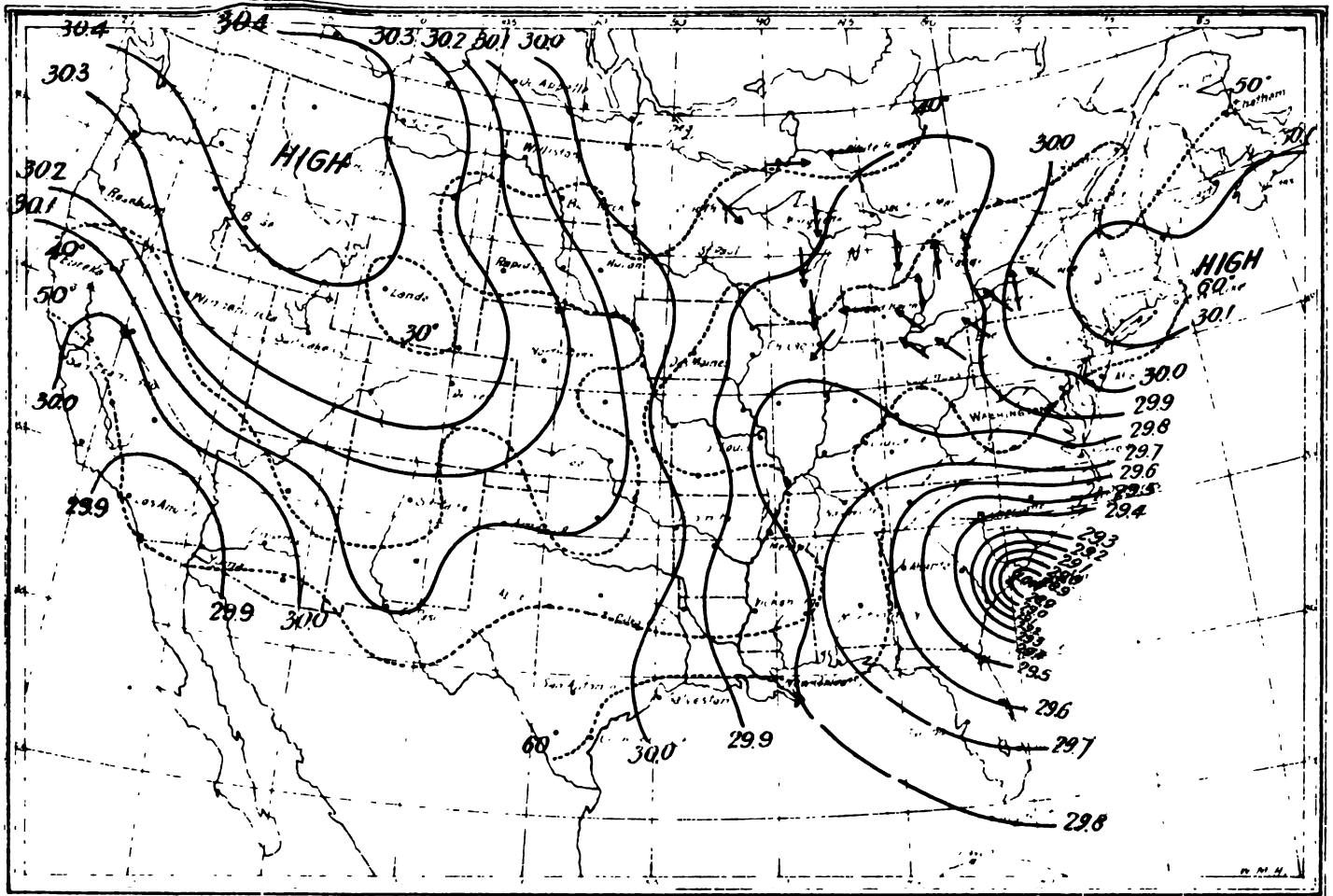


Chart DOXXVI.

October 18, 1898—8 p. m.

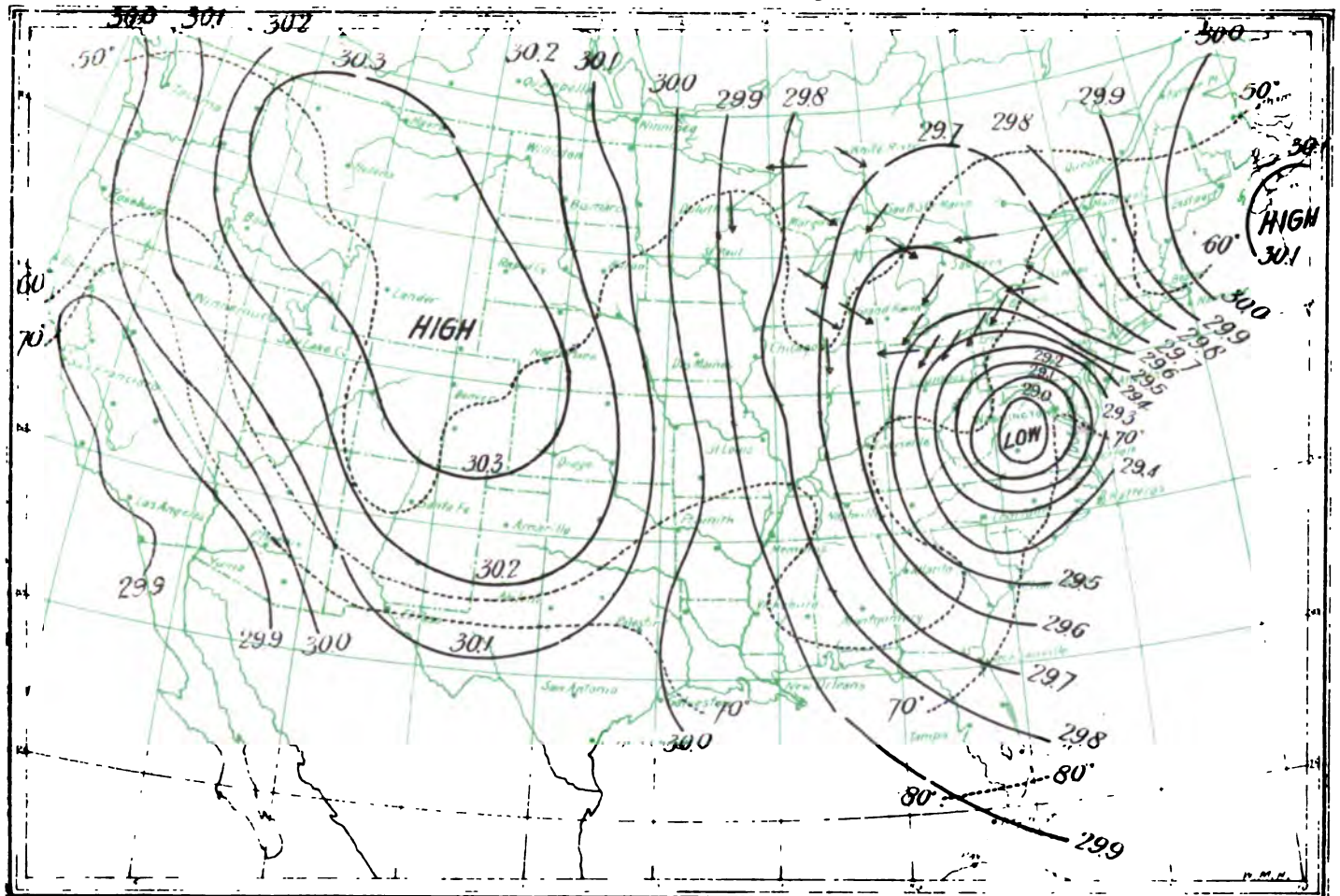


Chart DOXXVII.

October 14, 1898—8 a. m.

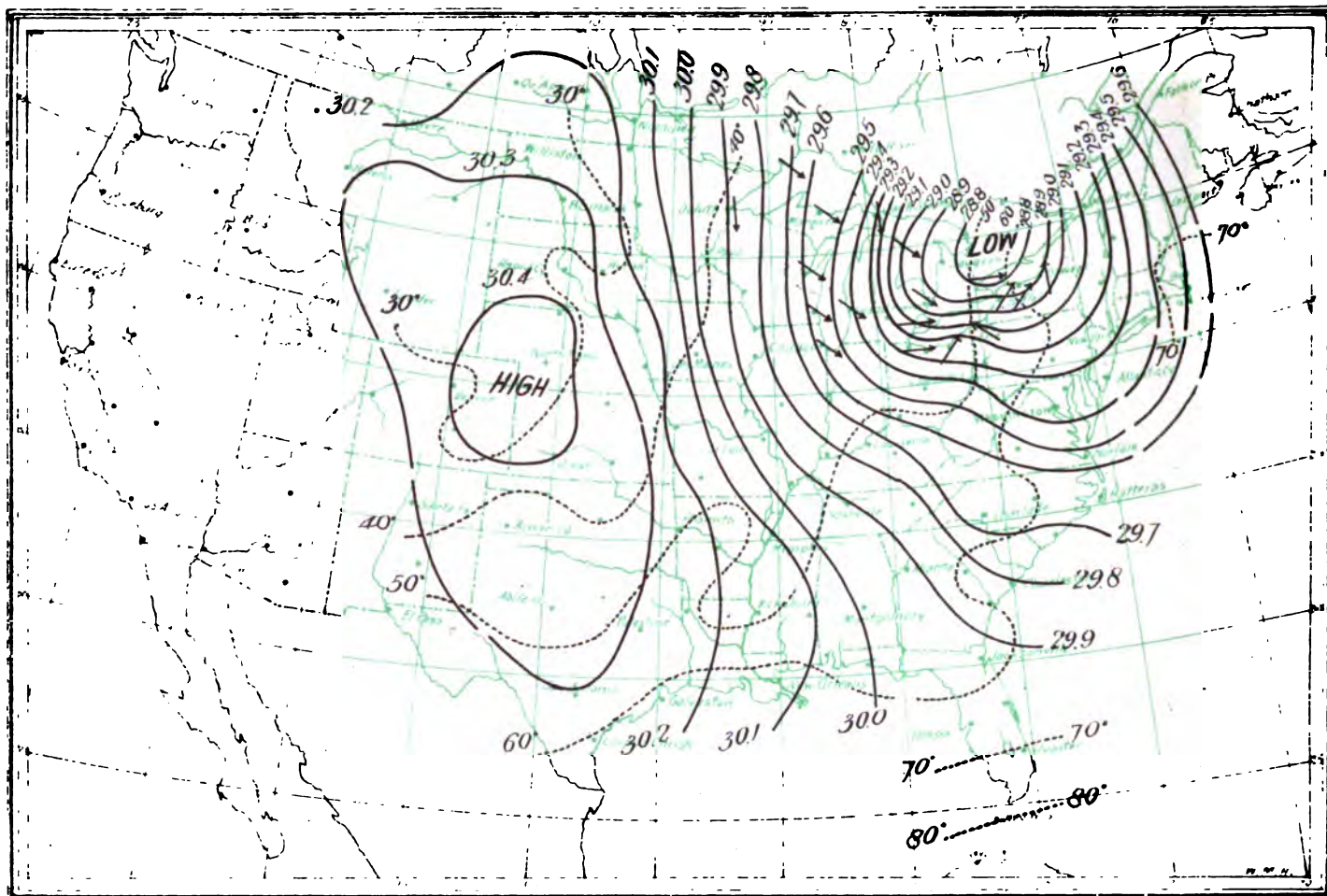


Chart DOXXVIII.

October 14, 1898—8 p. m.

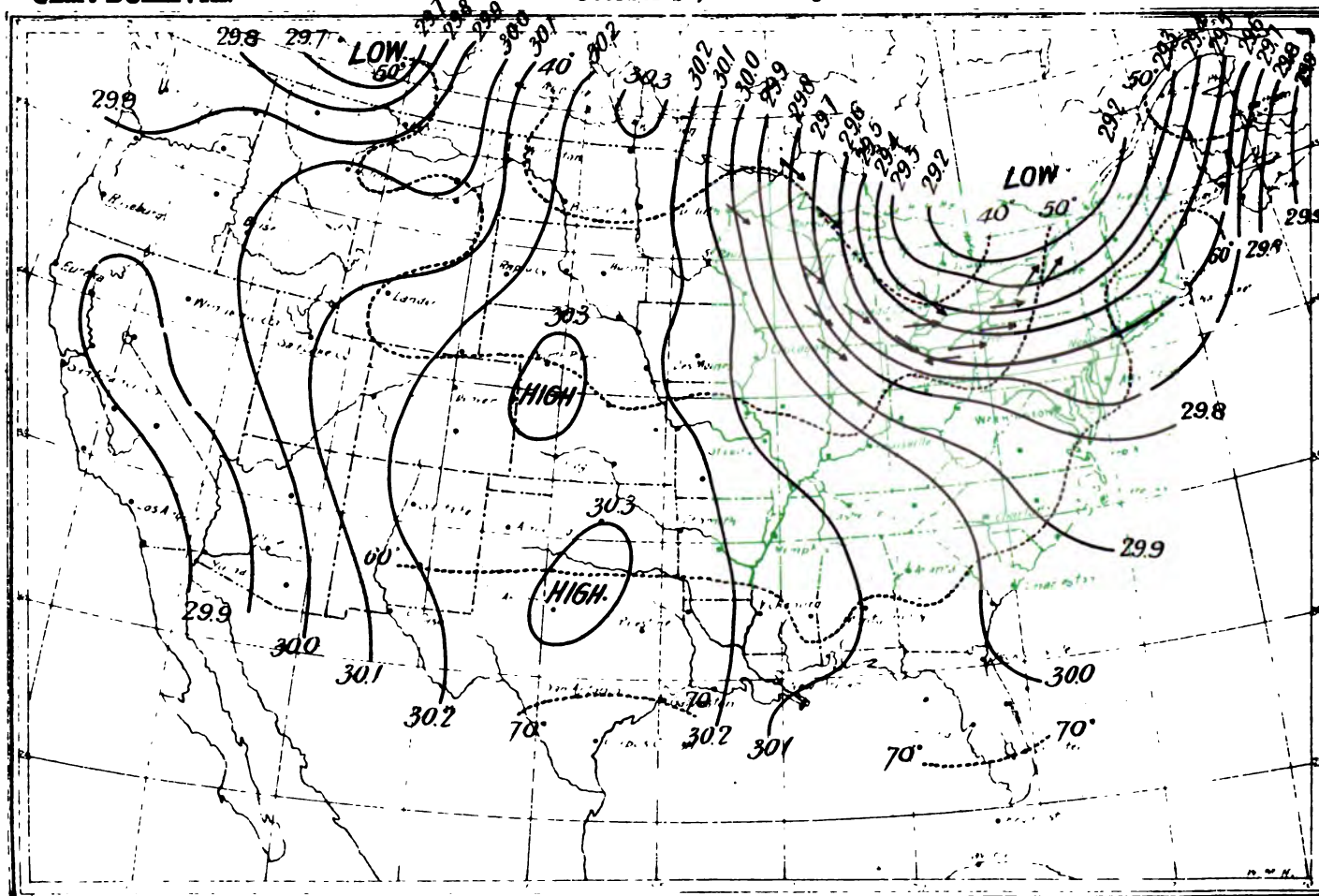


Chart DOXXIX.

October 28, 1894—8 a. m.

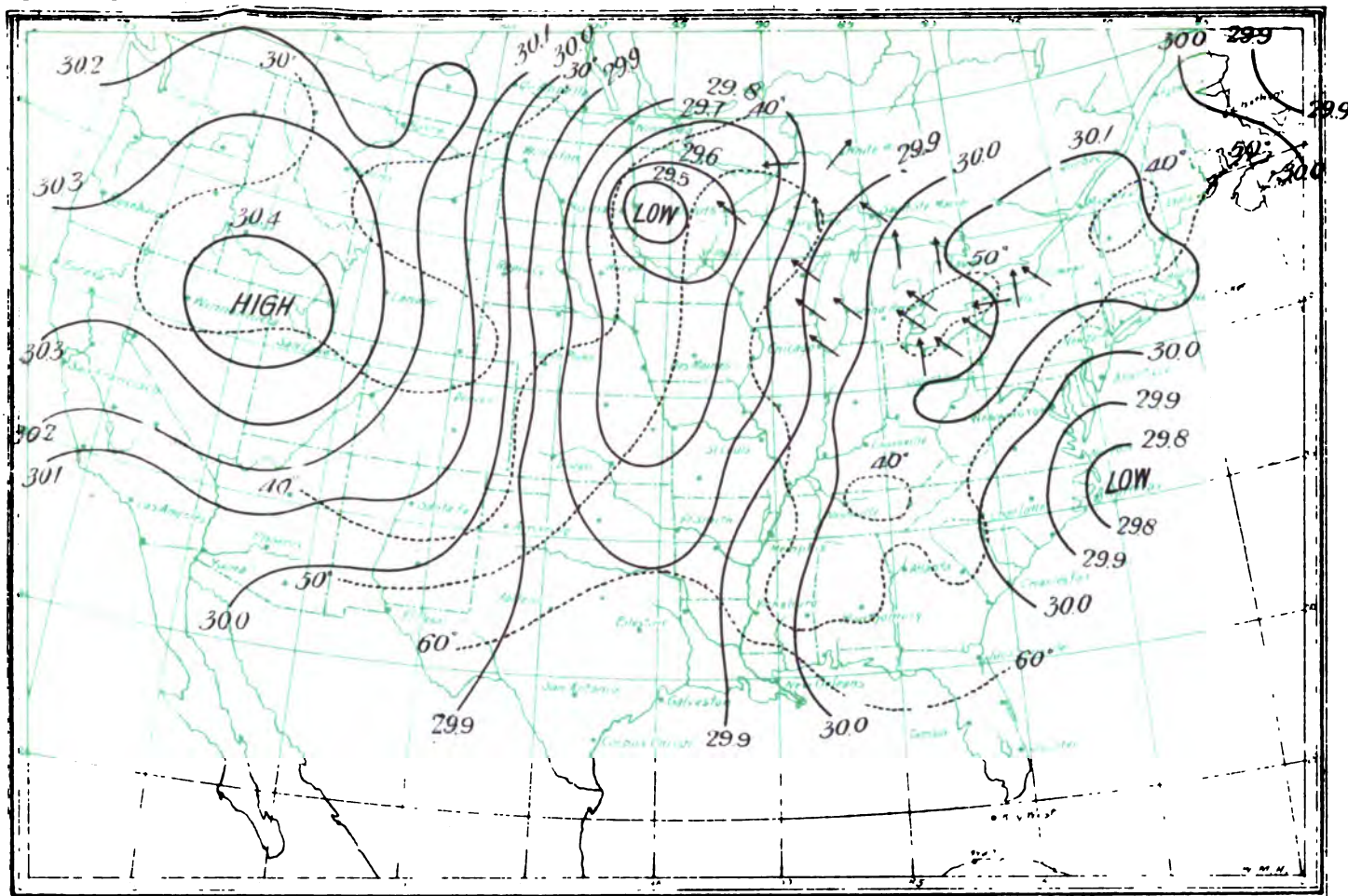
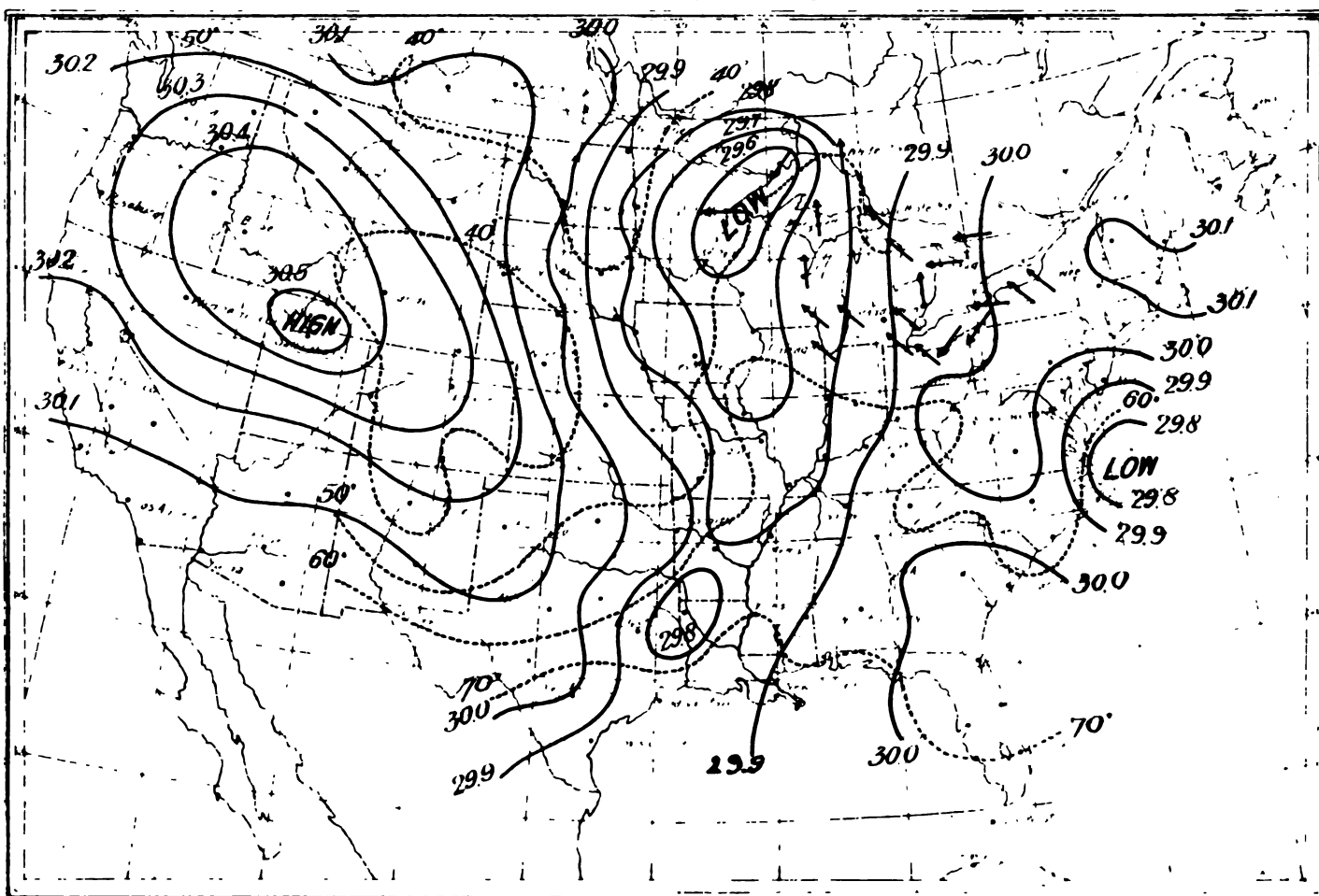


Chart DOXXX.

October 28, 1894—8 p. m.



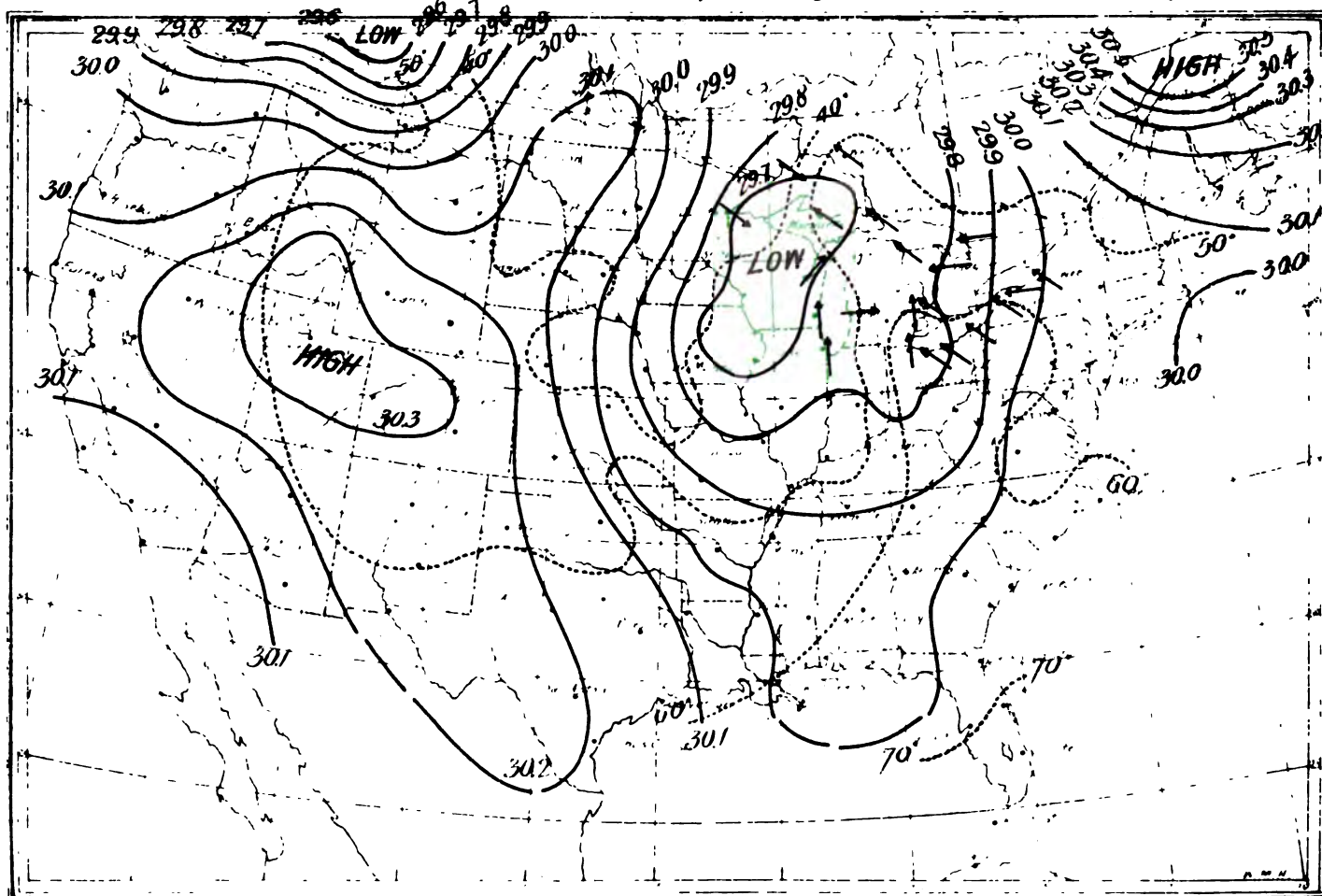
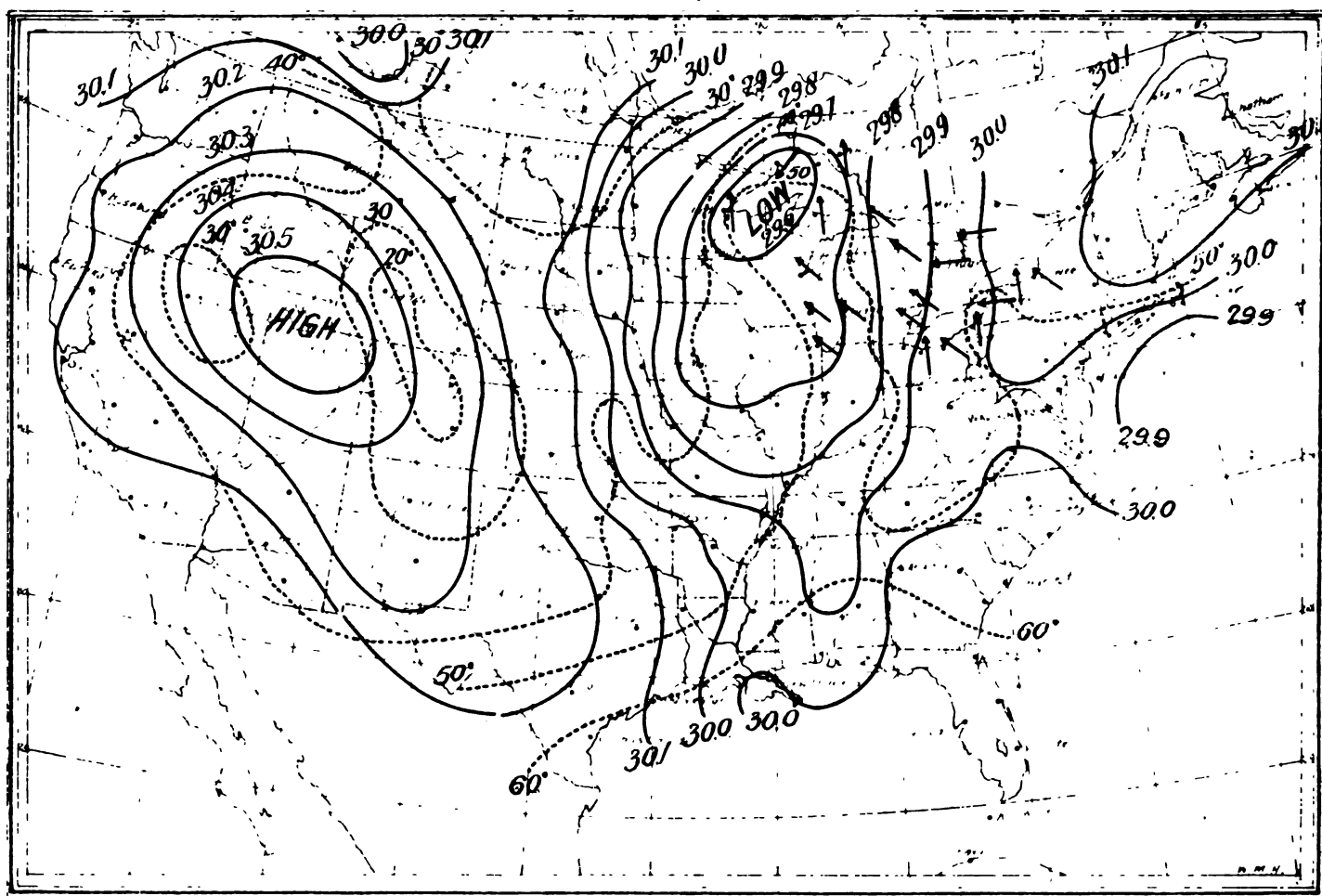


Chart DOXXXIII.

October 30, 1894—8 a. m.

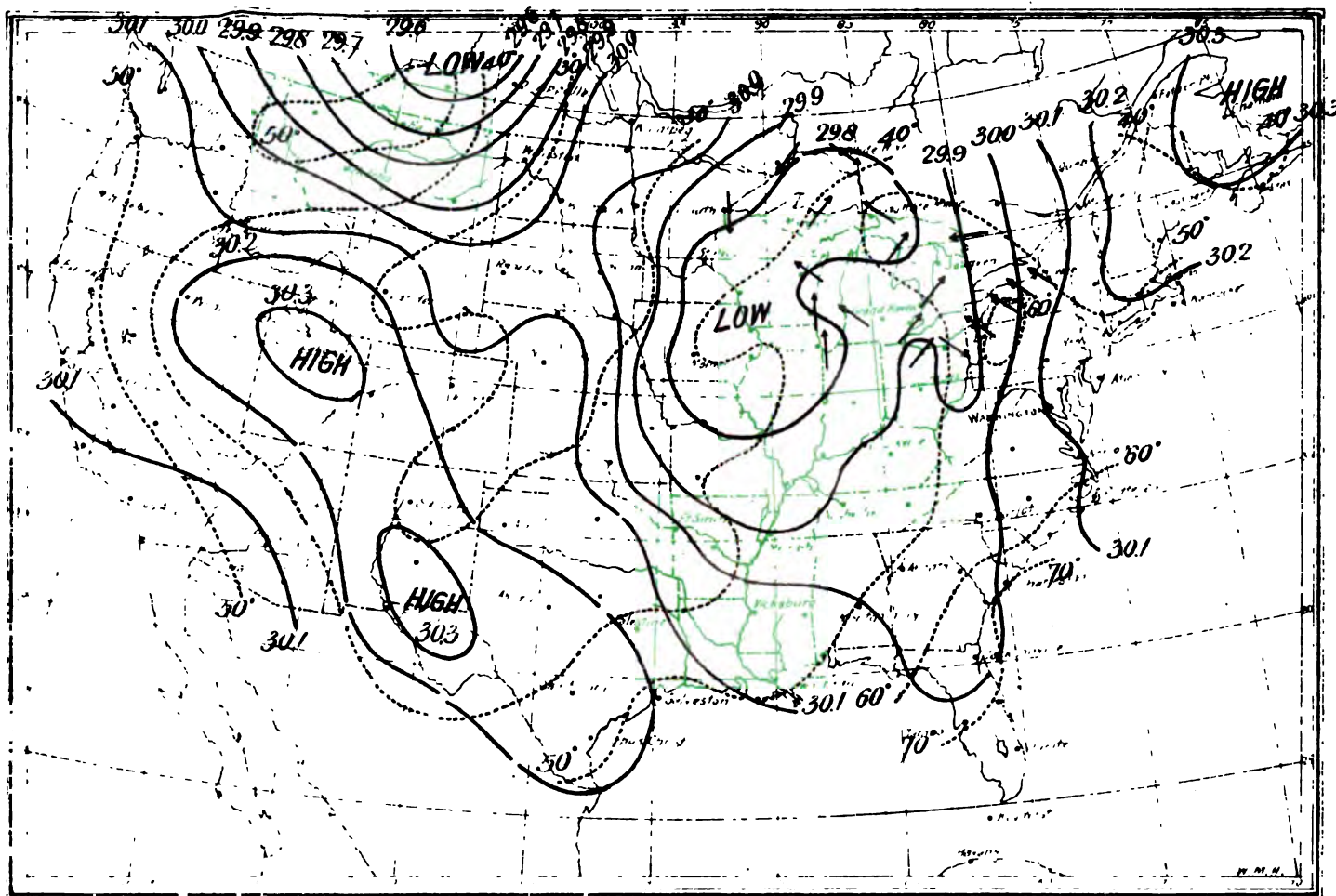


Chart DOXXXIV.

October 30, 1894—8 p. m.

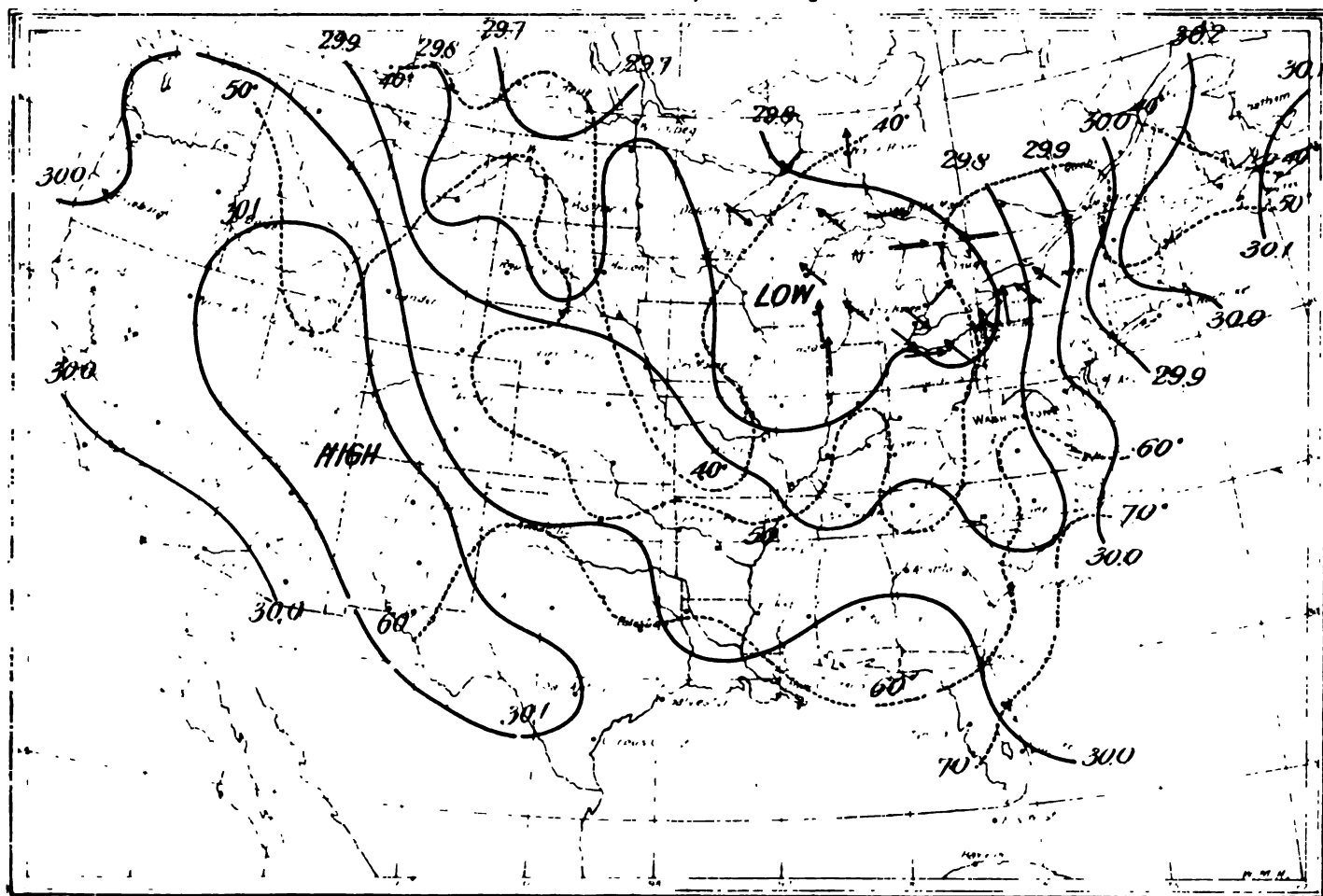


Chart DOXIX.

October 31, 1891—8 a. m.

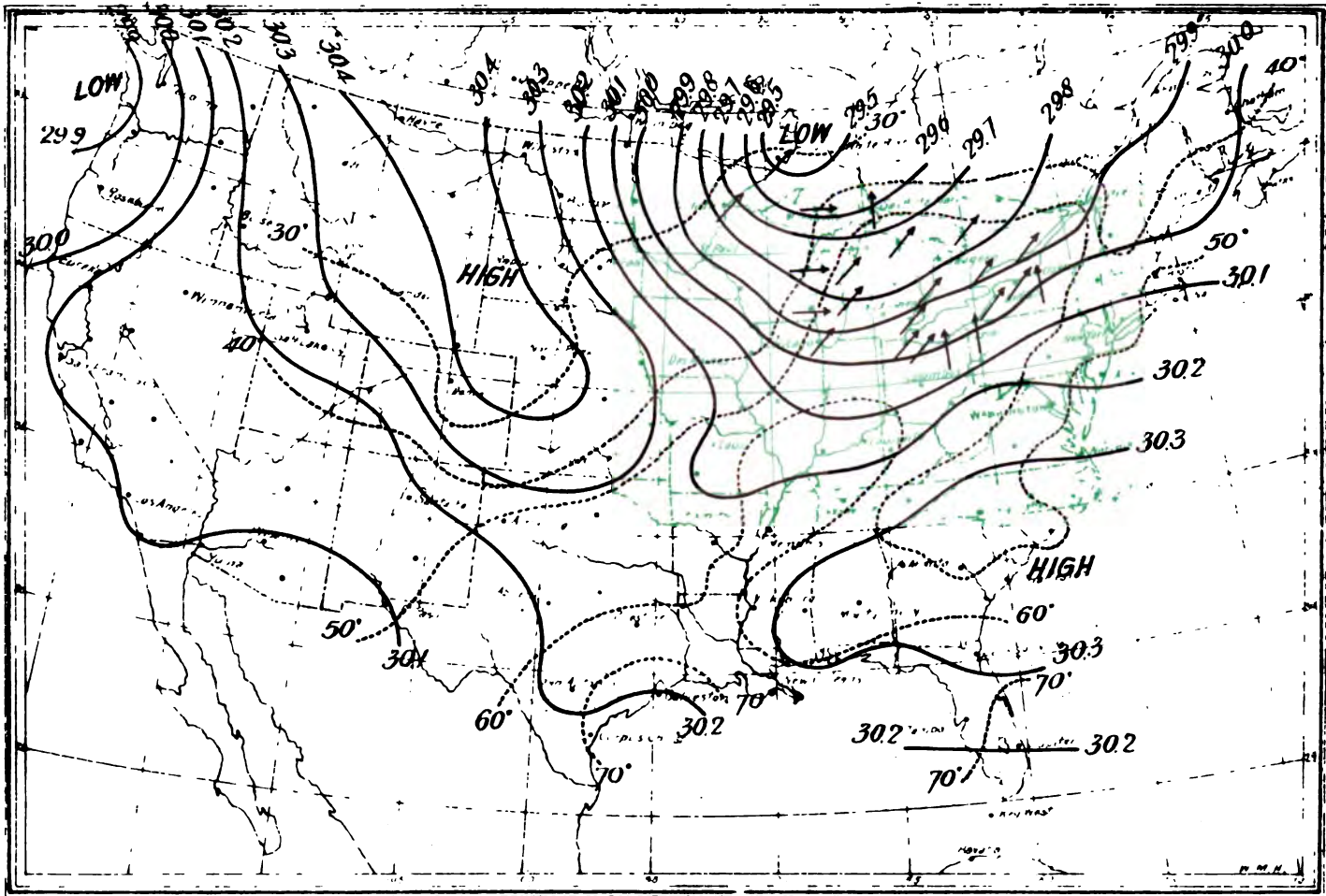


Chart DOXX.

October 31, 1891—8 p. m.

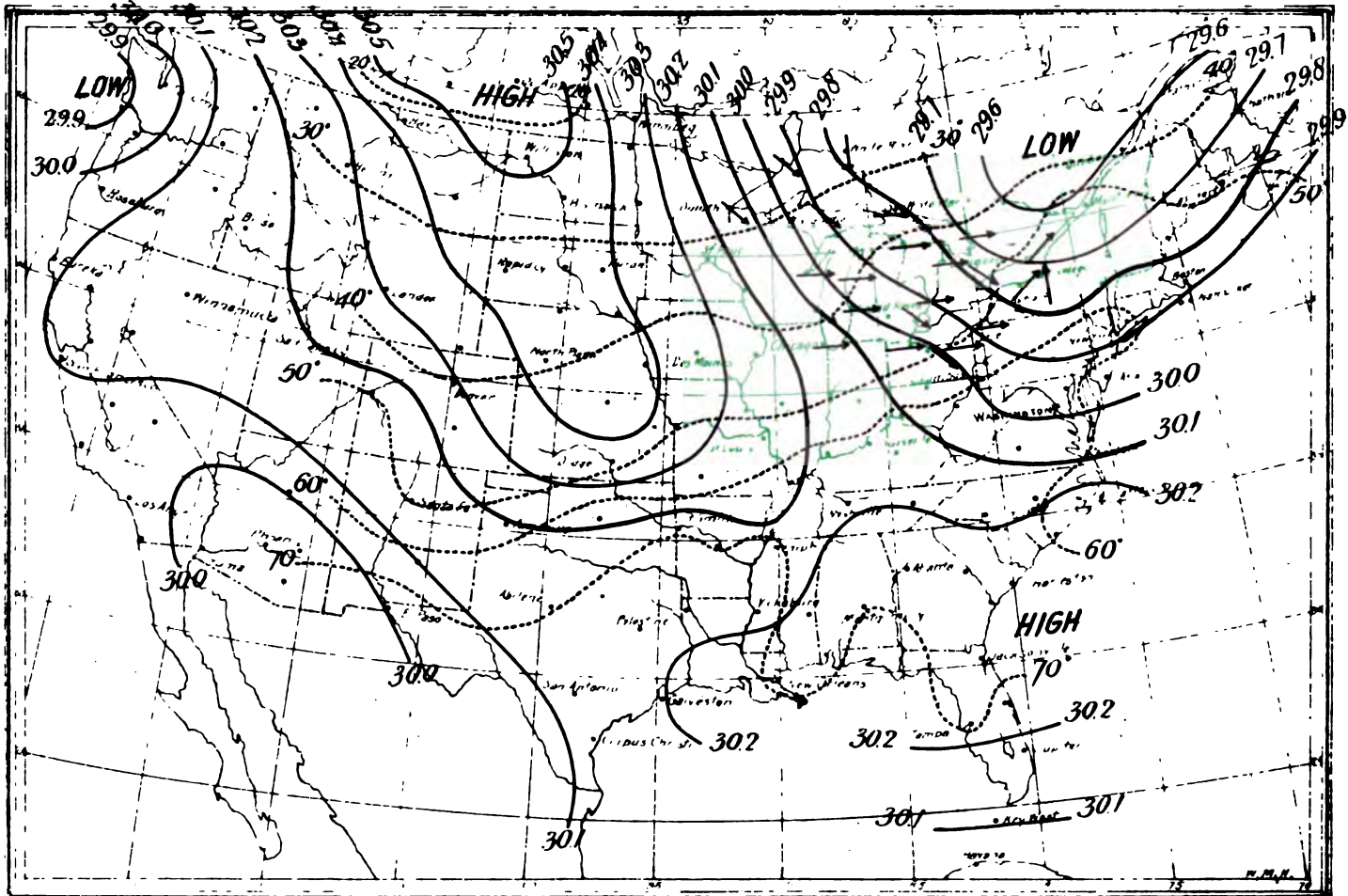


Chart DOXXI.

October 27, 1892—8 p. m.

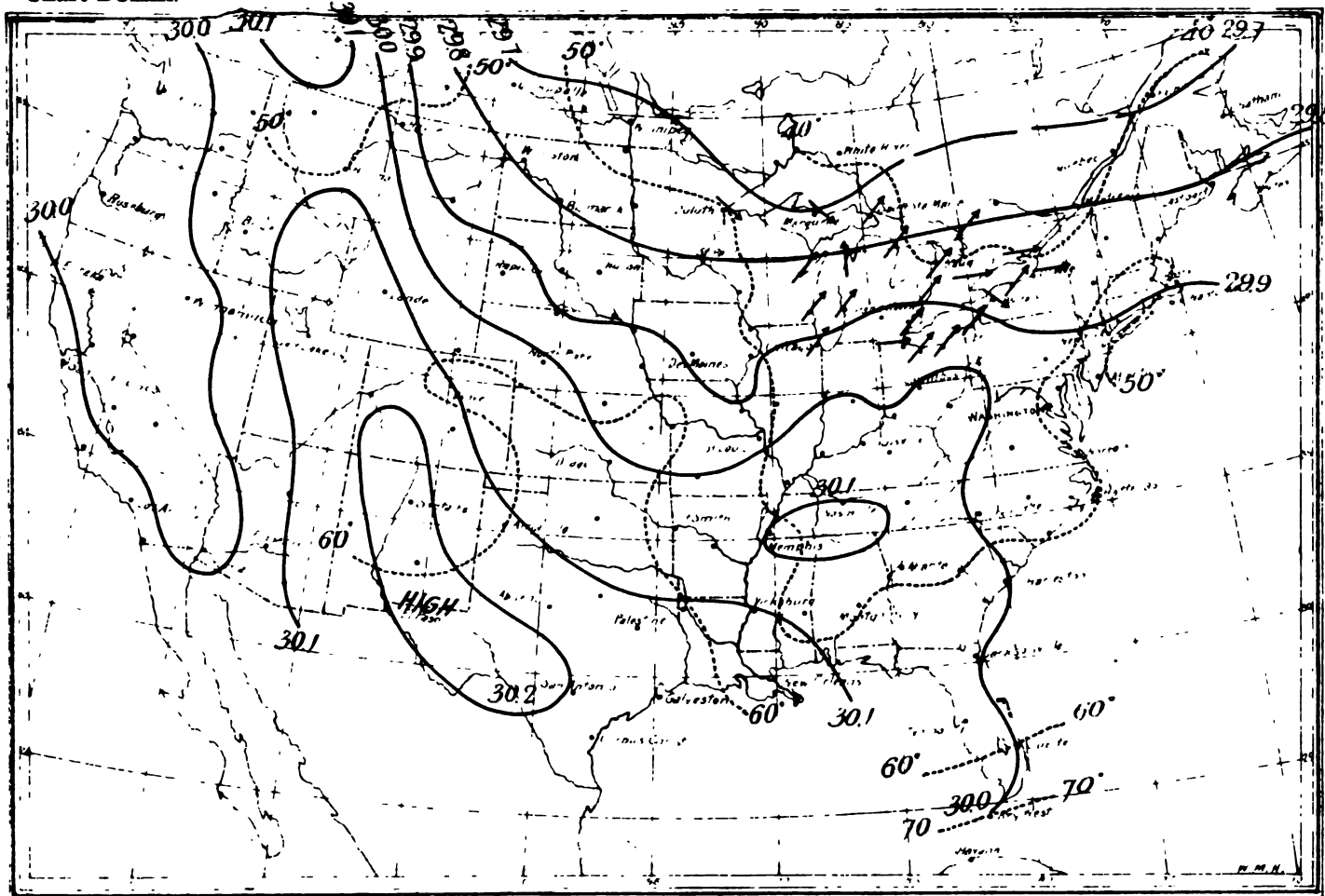


Chart DOXXII.

October 28, 1892—8 a. m.

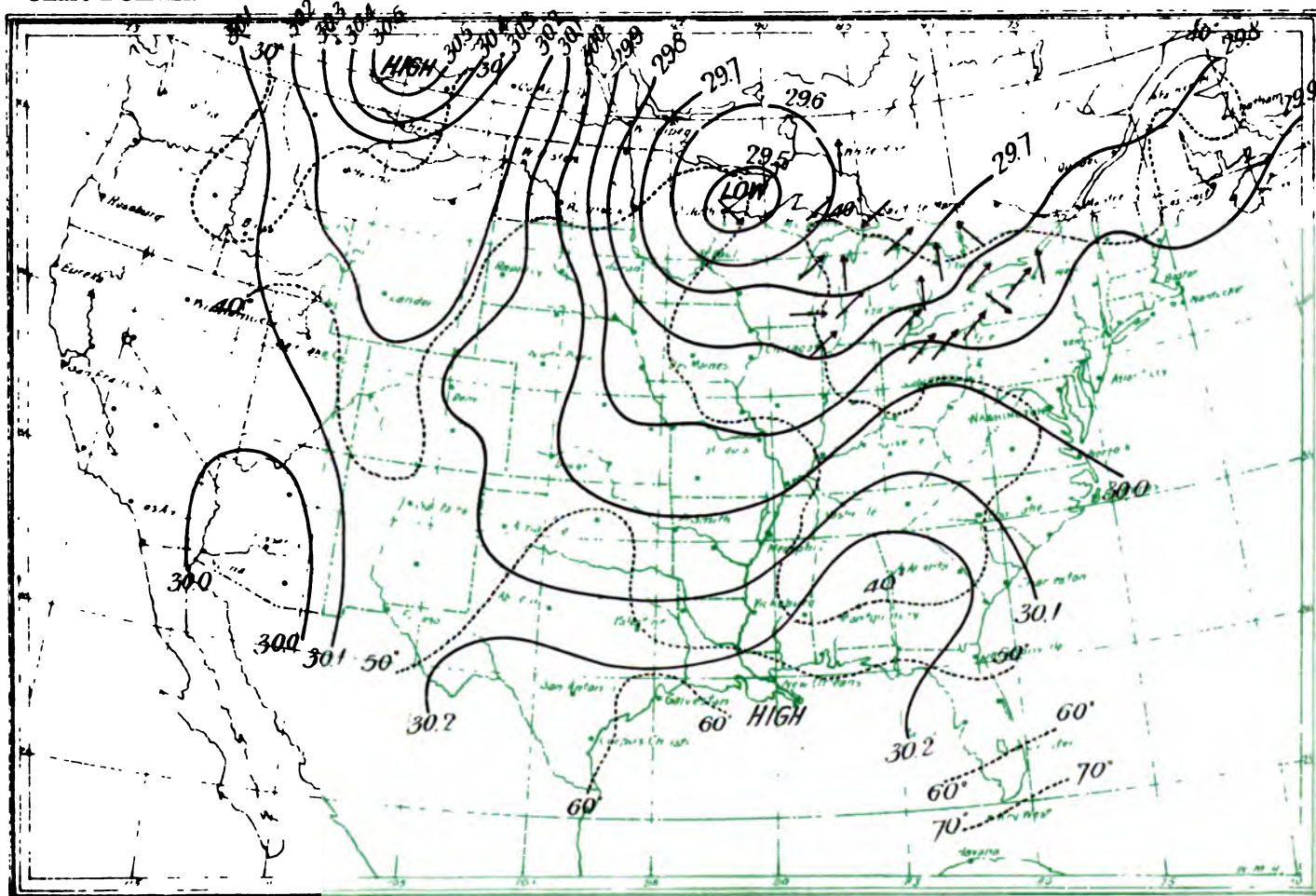


Chart DOXXIII.

October 28, 1892—8 p. m.

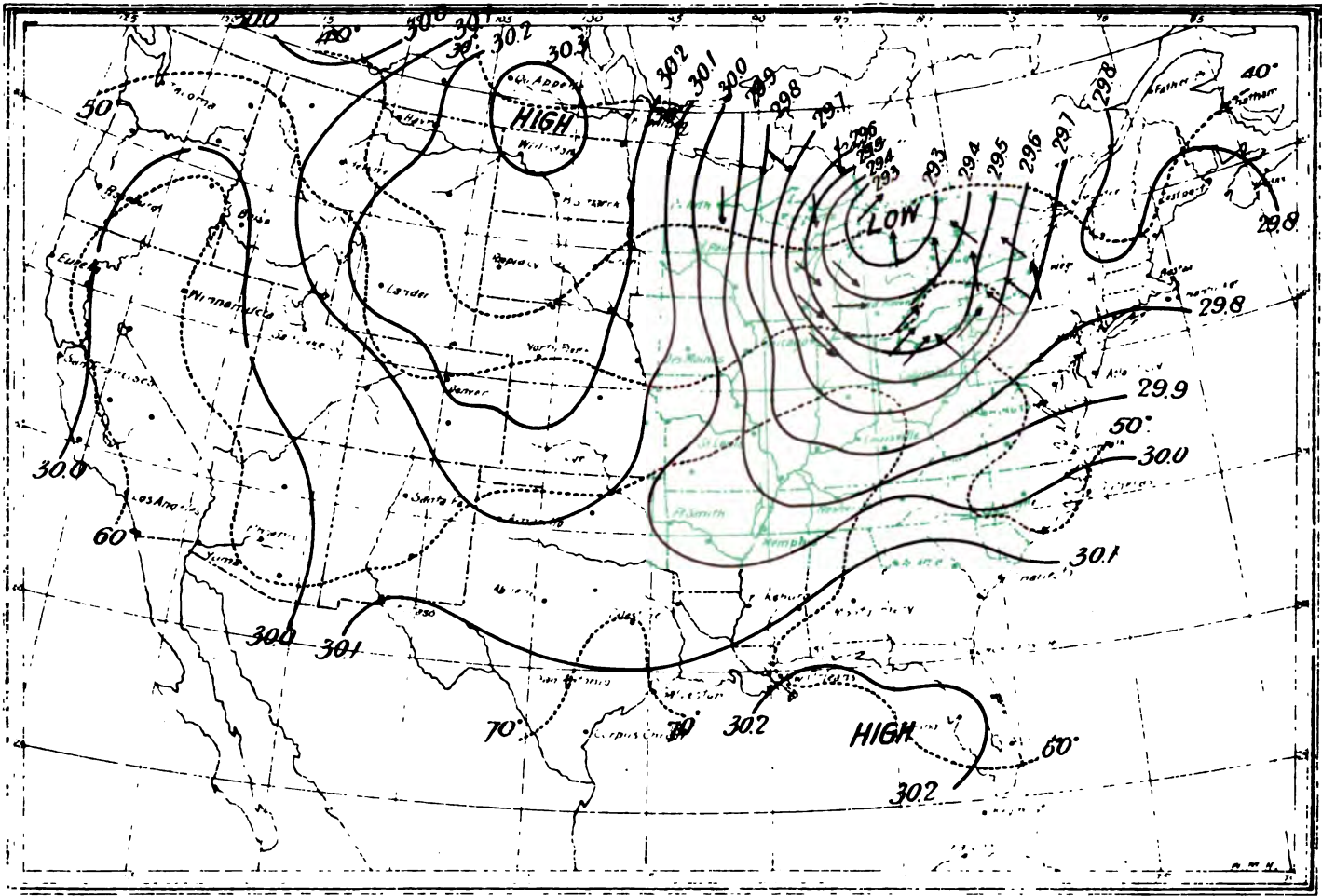


Chart DOXXIV.

October 29, 1892—8 a. m.

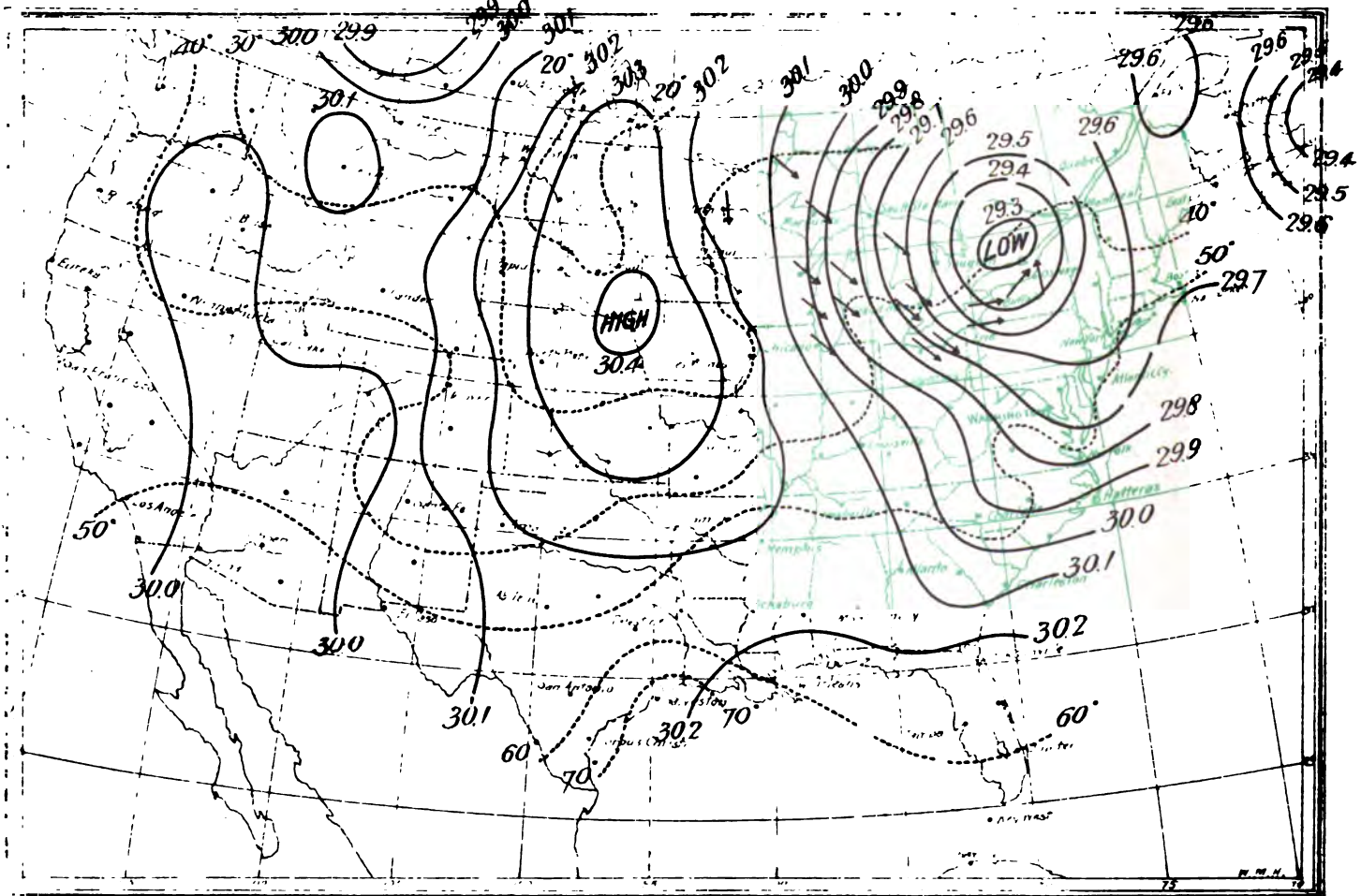


Chart DOXXV.

October 18, 1898—8 a. m.

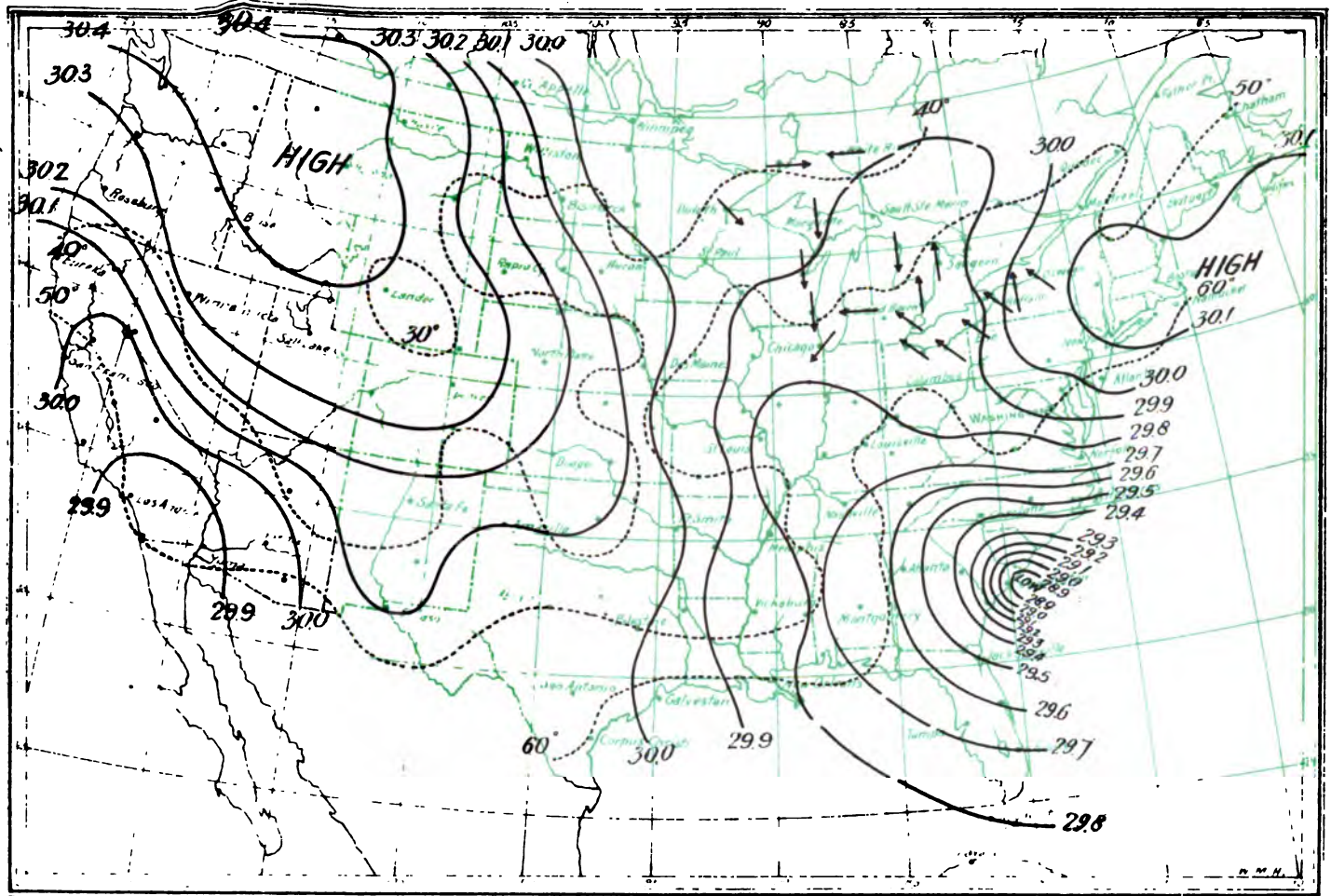


Chart DOXXVI.

October 18, 1898—8 p. m.

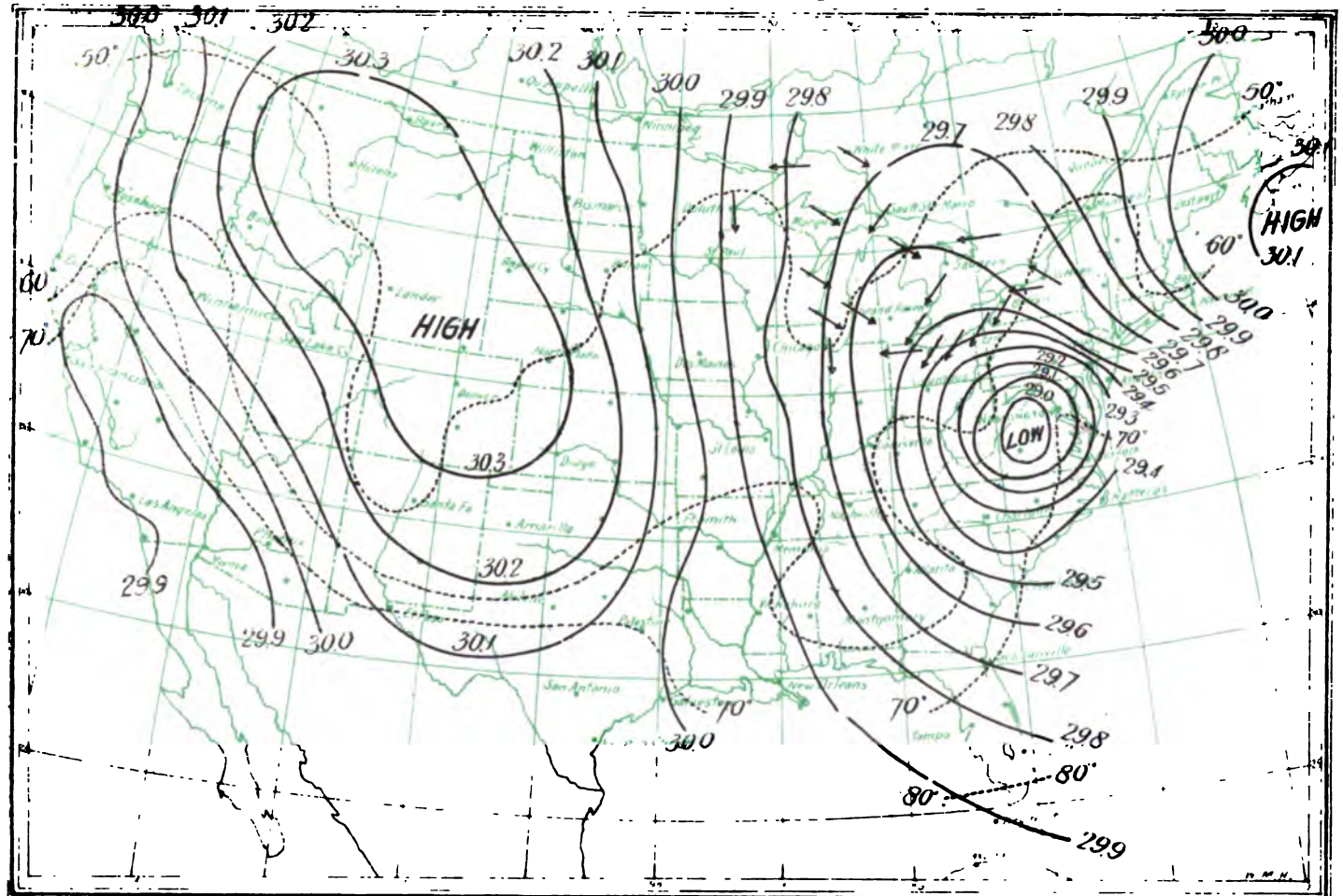


Chart DOXXVII.

October 14, 1893—8 a. m.

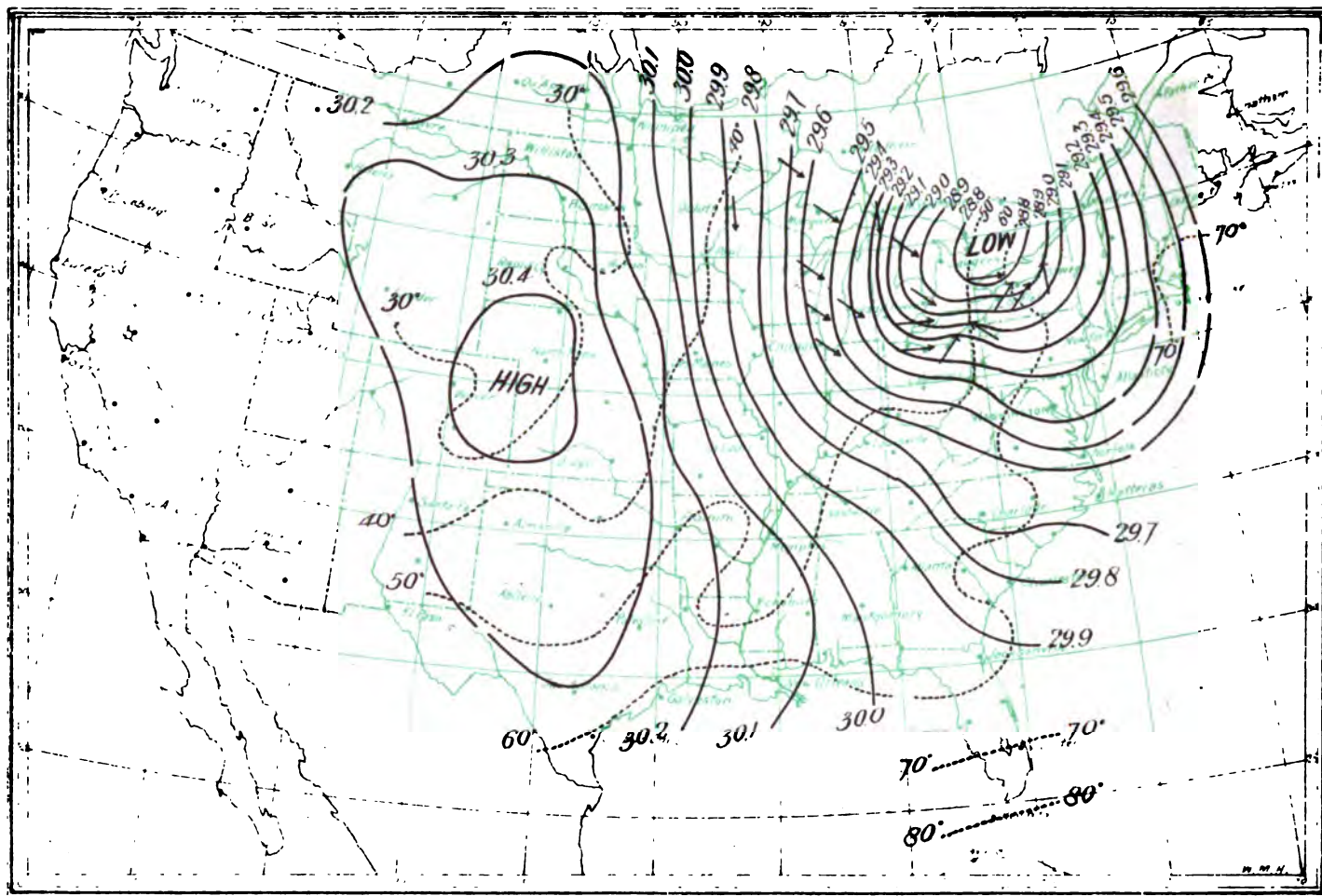


Chart DOXXVIII.

October 14, 1893—8 p. m.

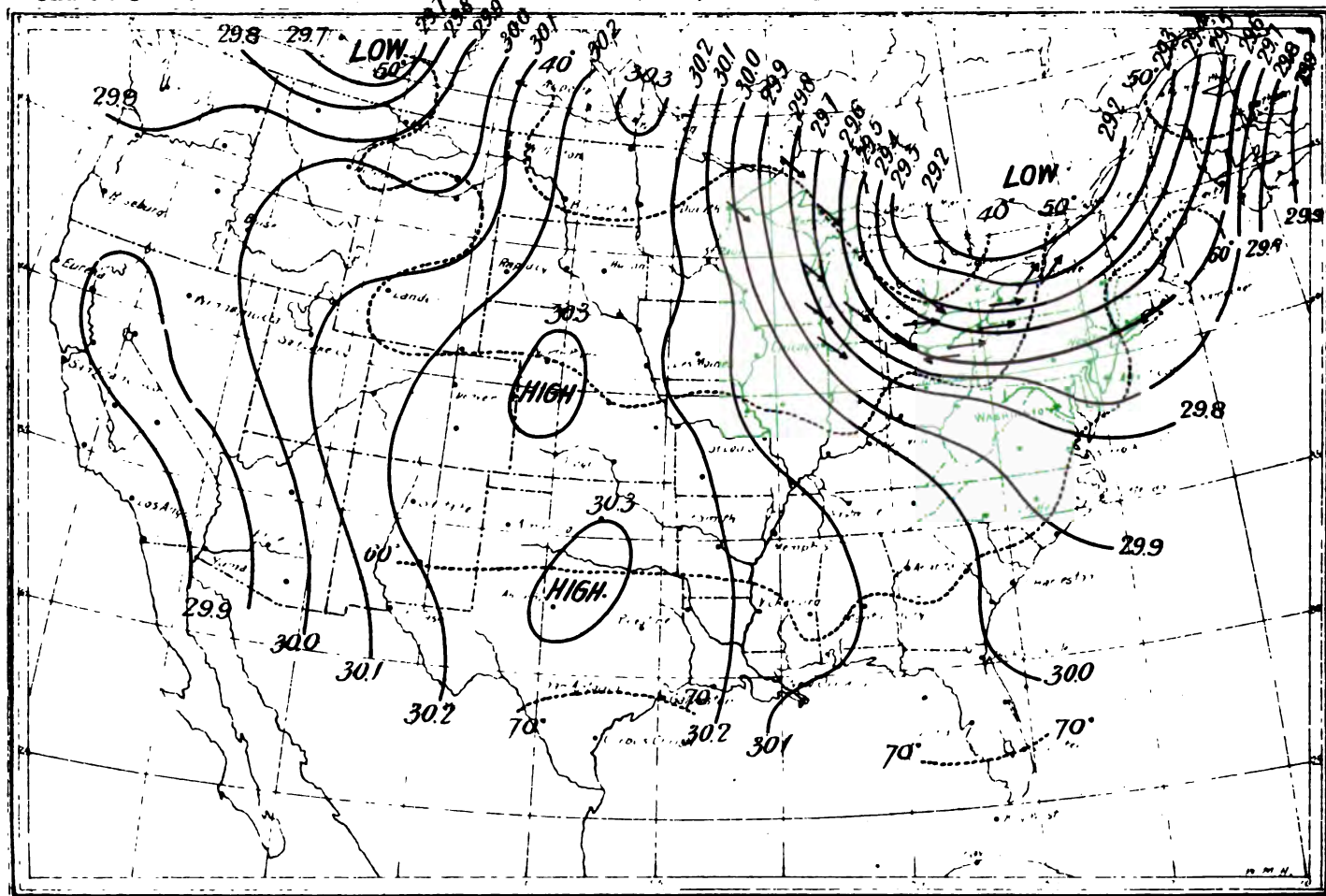


Chart DOXXXIX.

October 28, 1894—8 a. m.

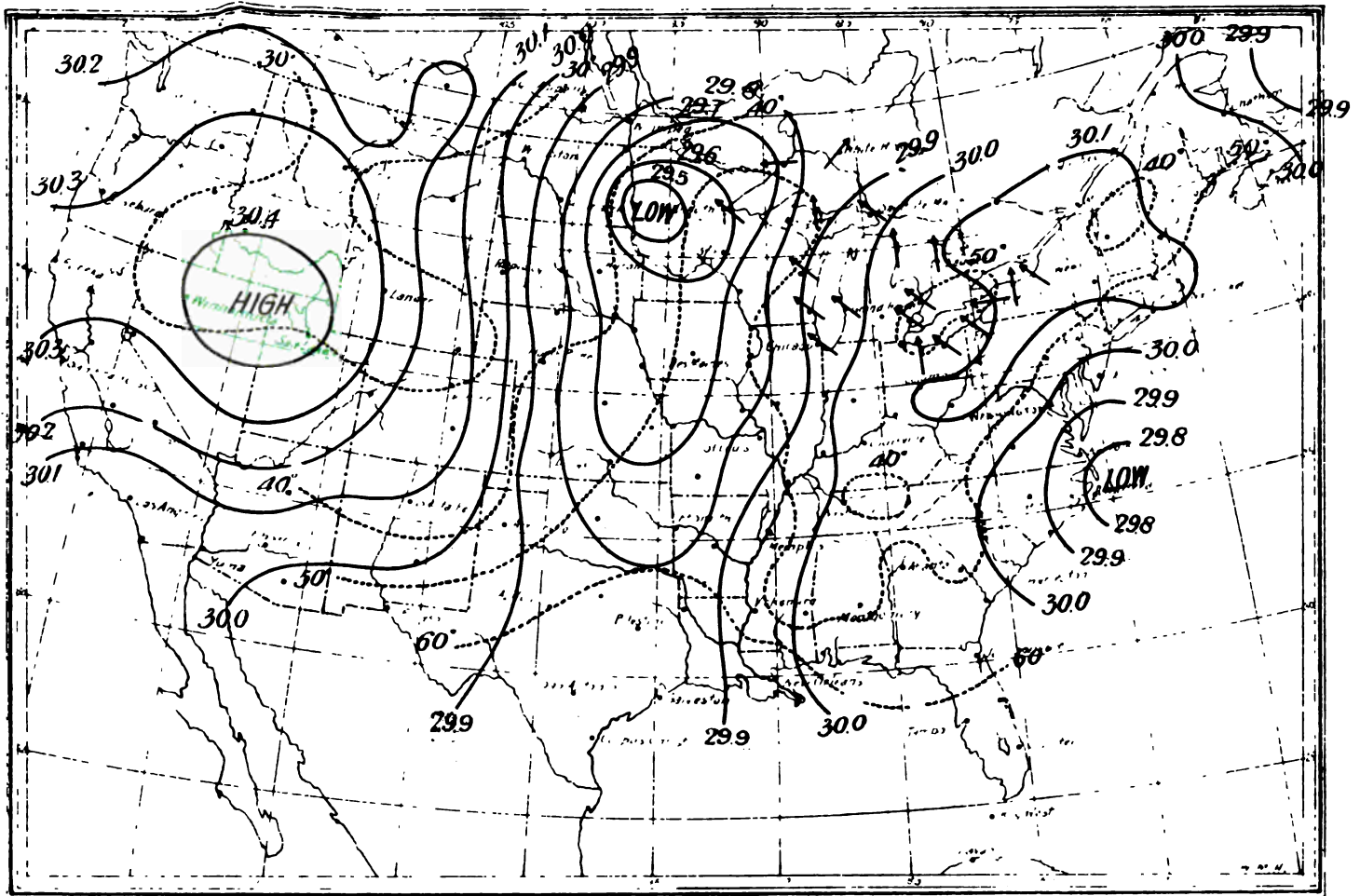
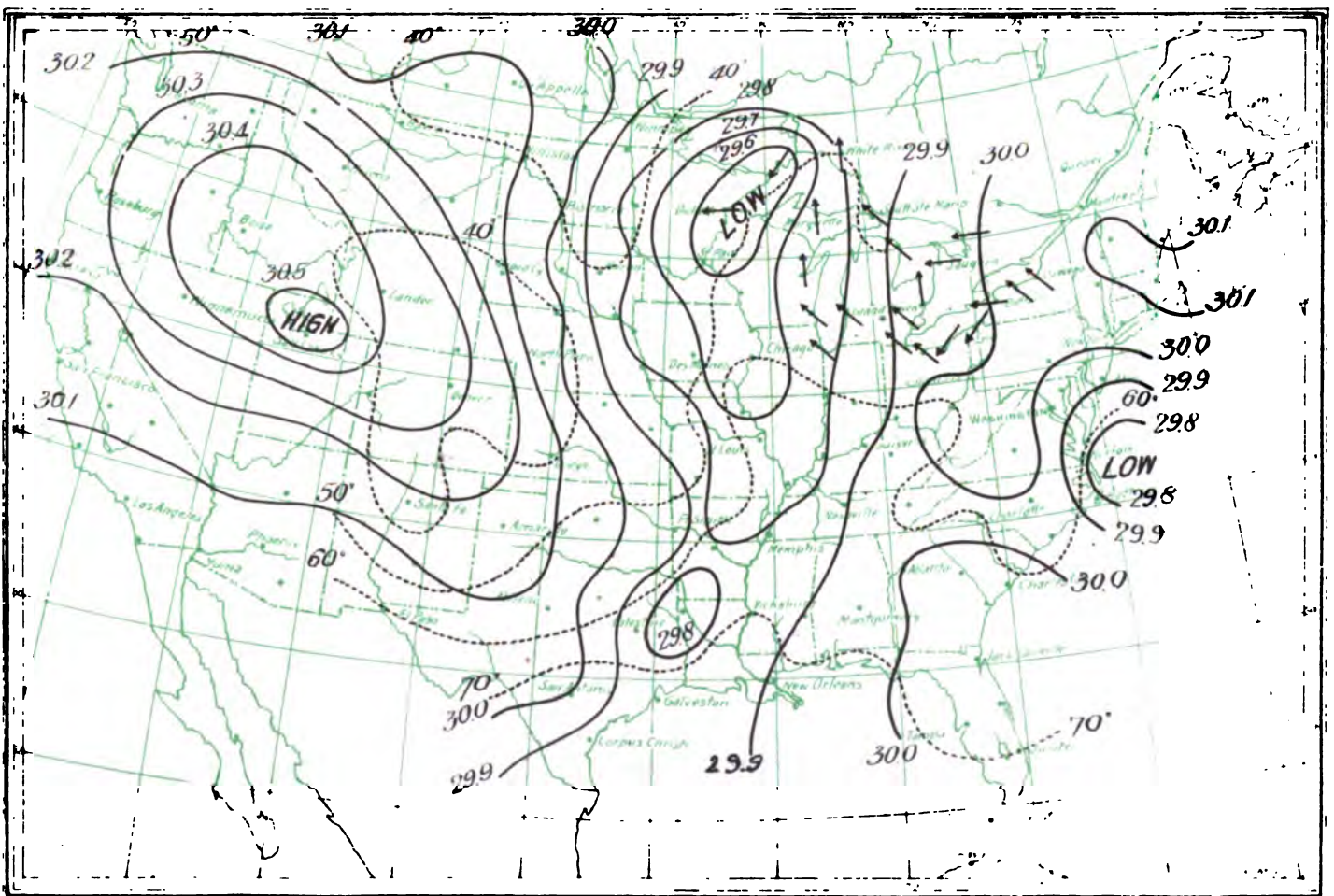


Chart DOXXXX.

October 28, 1894—8 p. m.



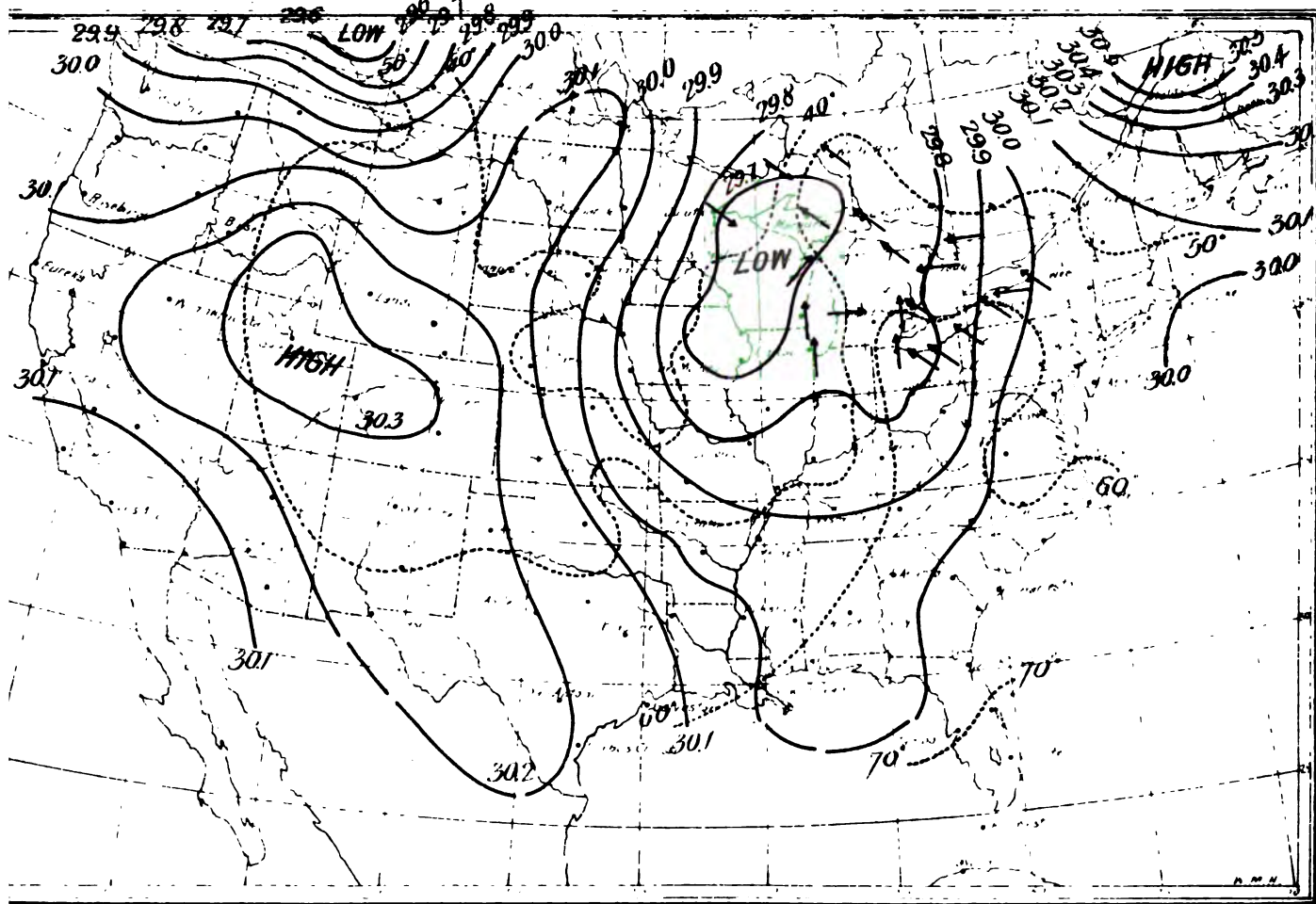
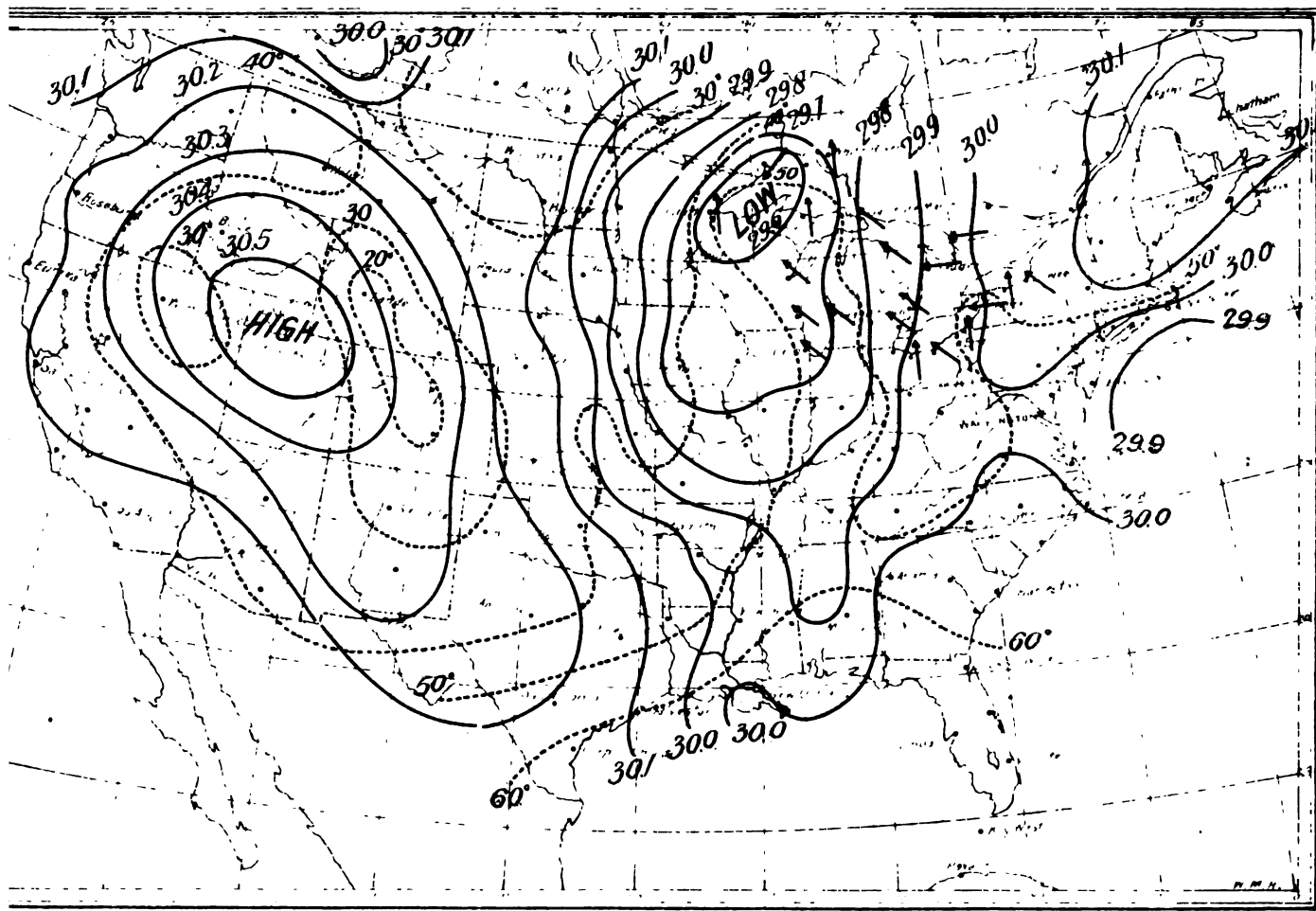


Chart DOXXXIII.

October 30, 1894—8 a. m.

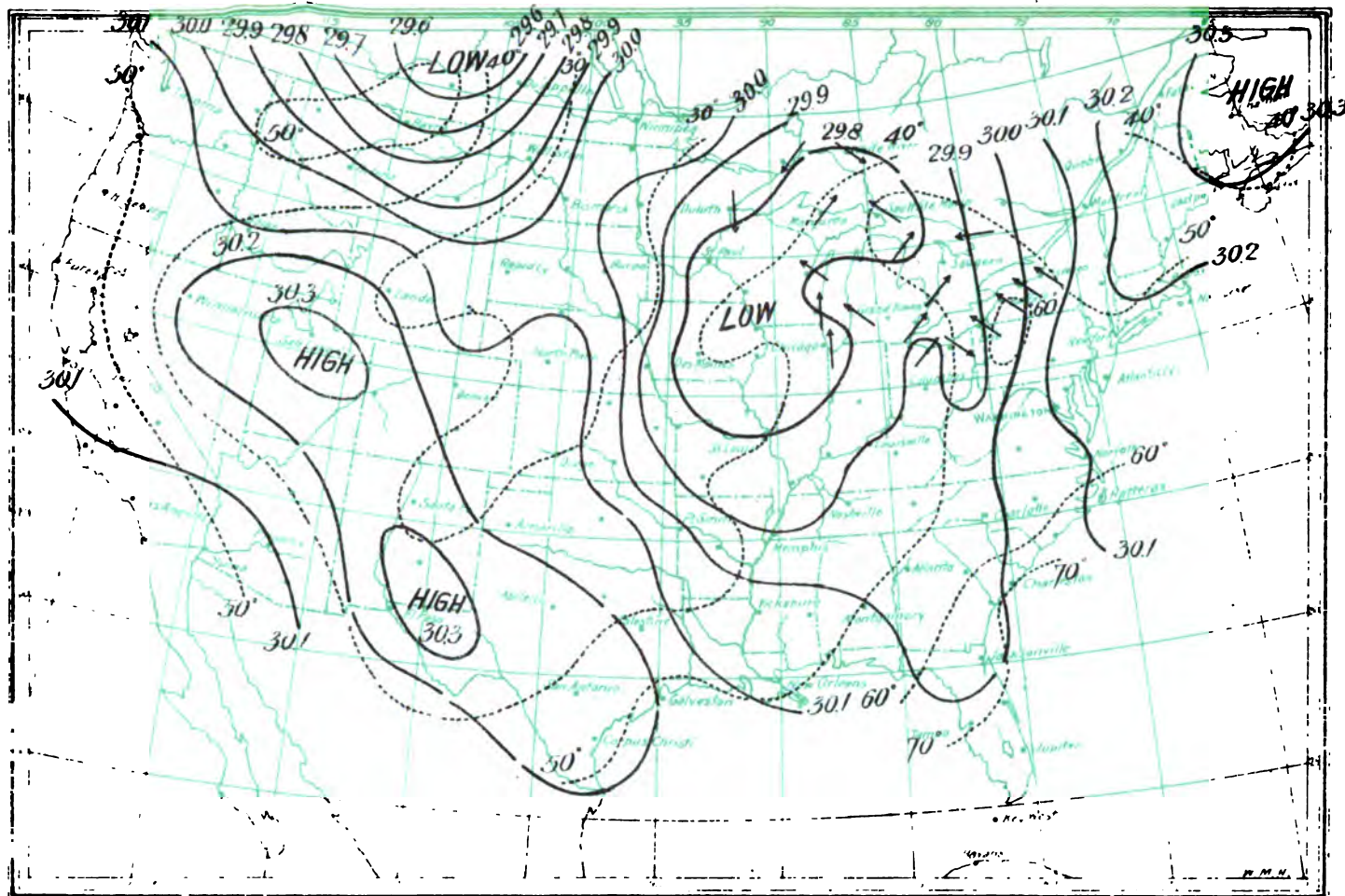


Chart DOXXXIV.

October 30, 1894—8 p. m.

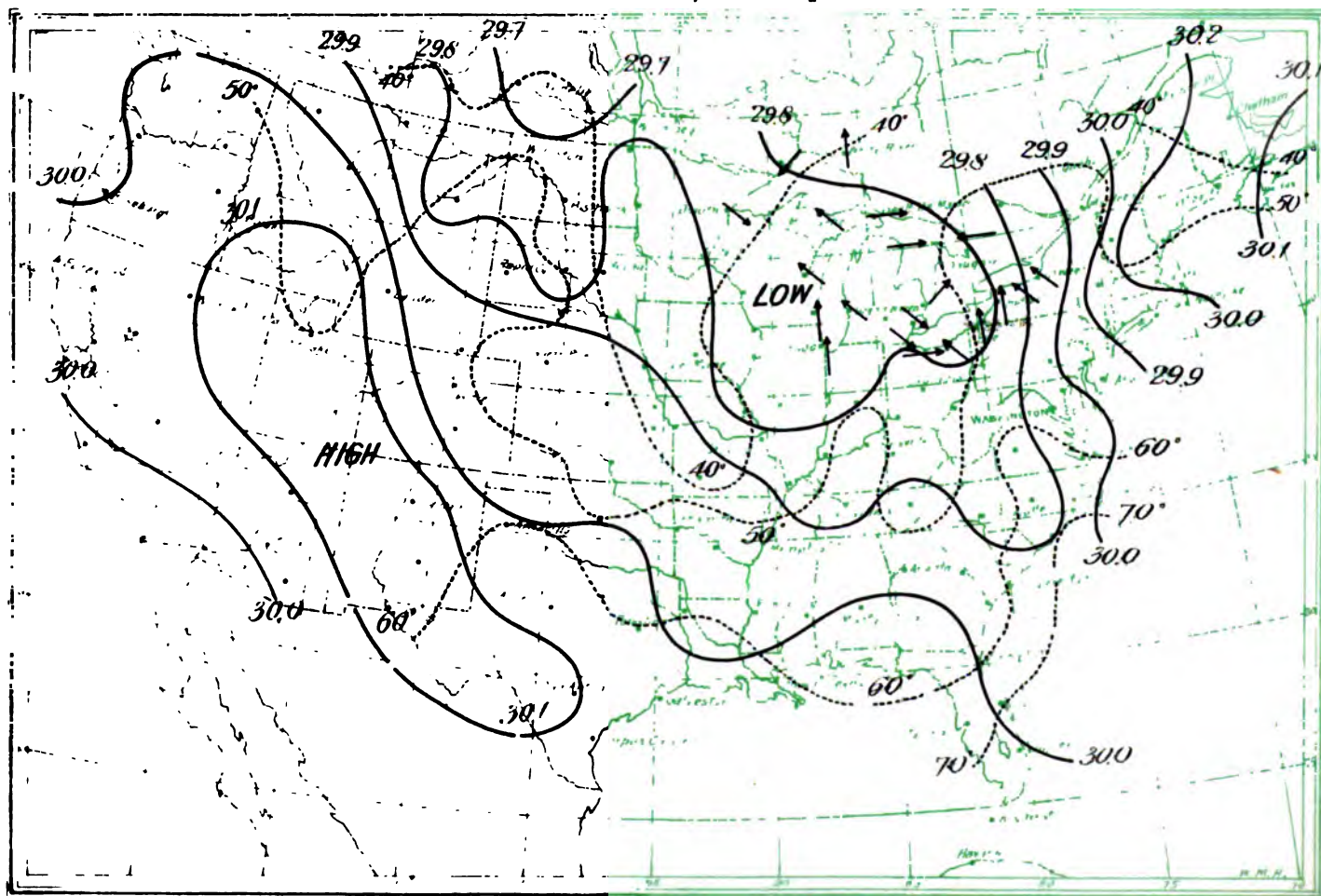


Chart DOXXXV.

October 31, 1894—8 a. m.

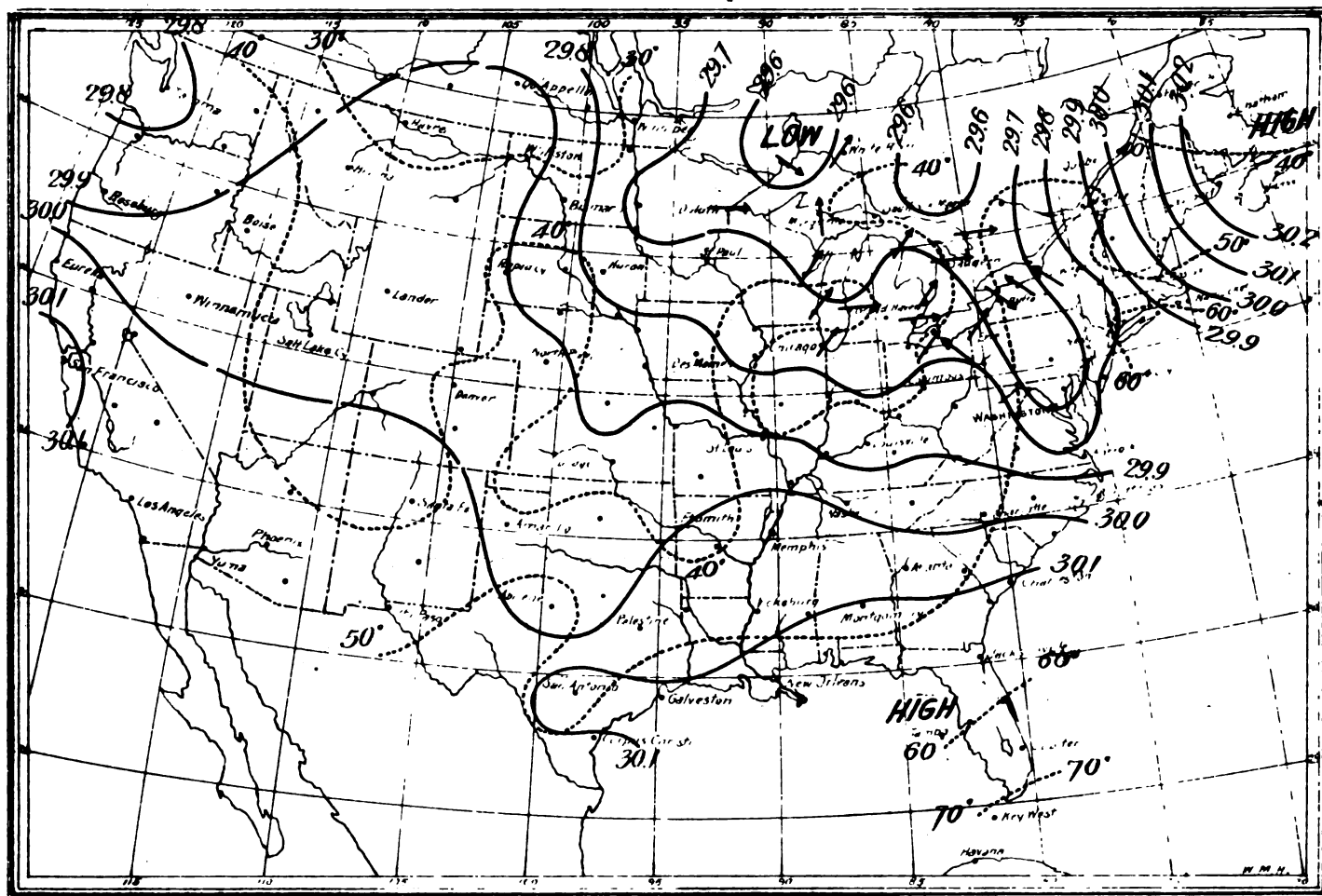


Chart DOXXXVI.

October 31, 1894—8 p. m.

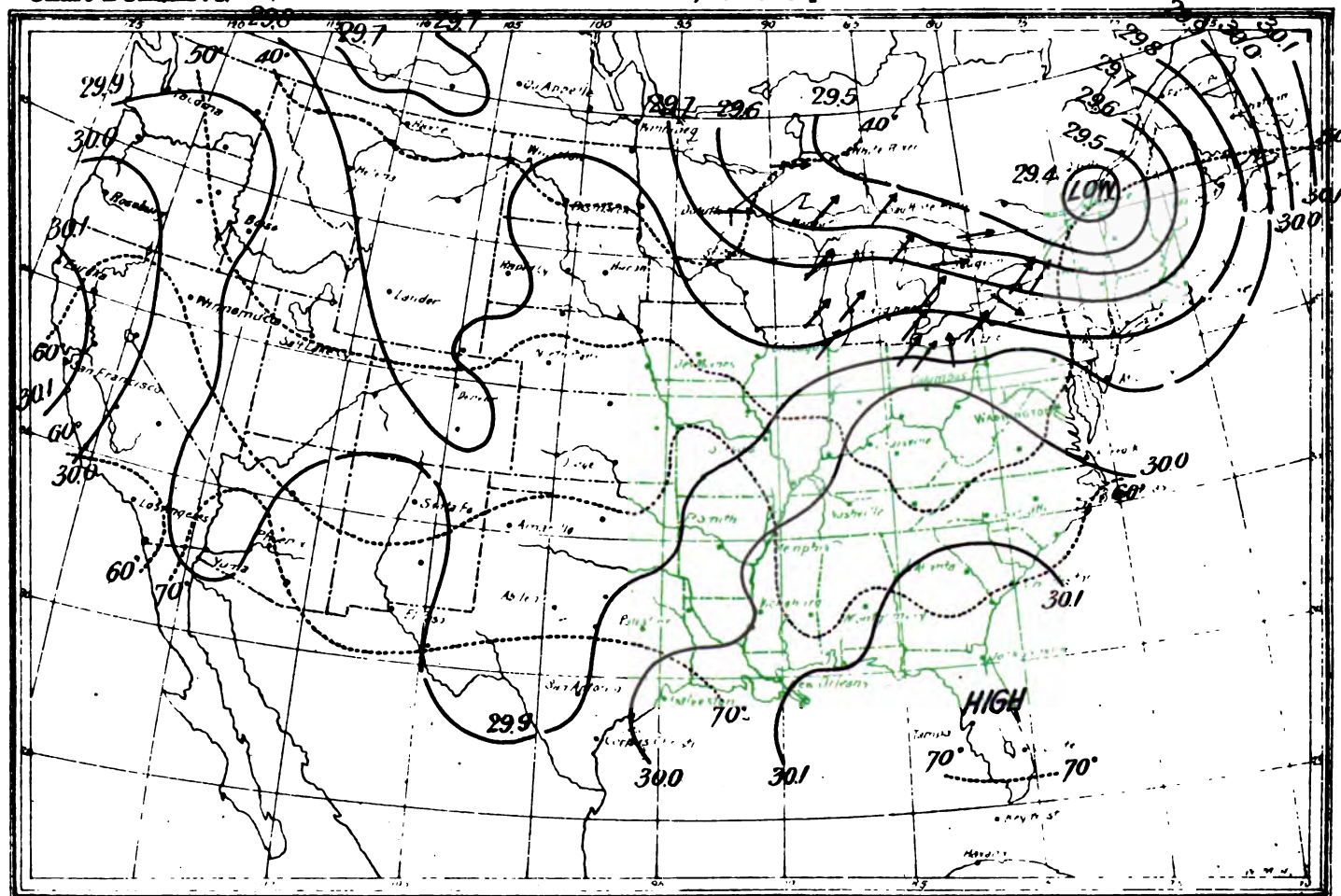


Chart DOXXXVII.

October 29, 1896—8 p. m.

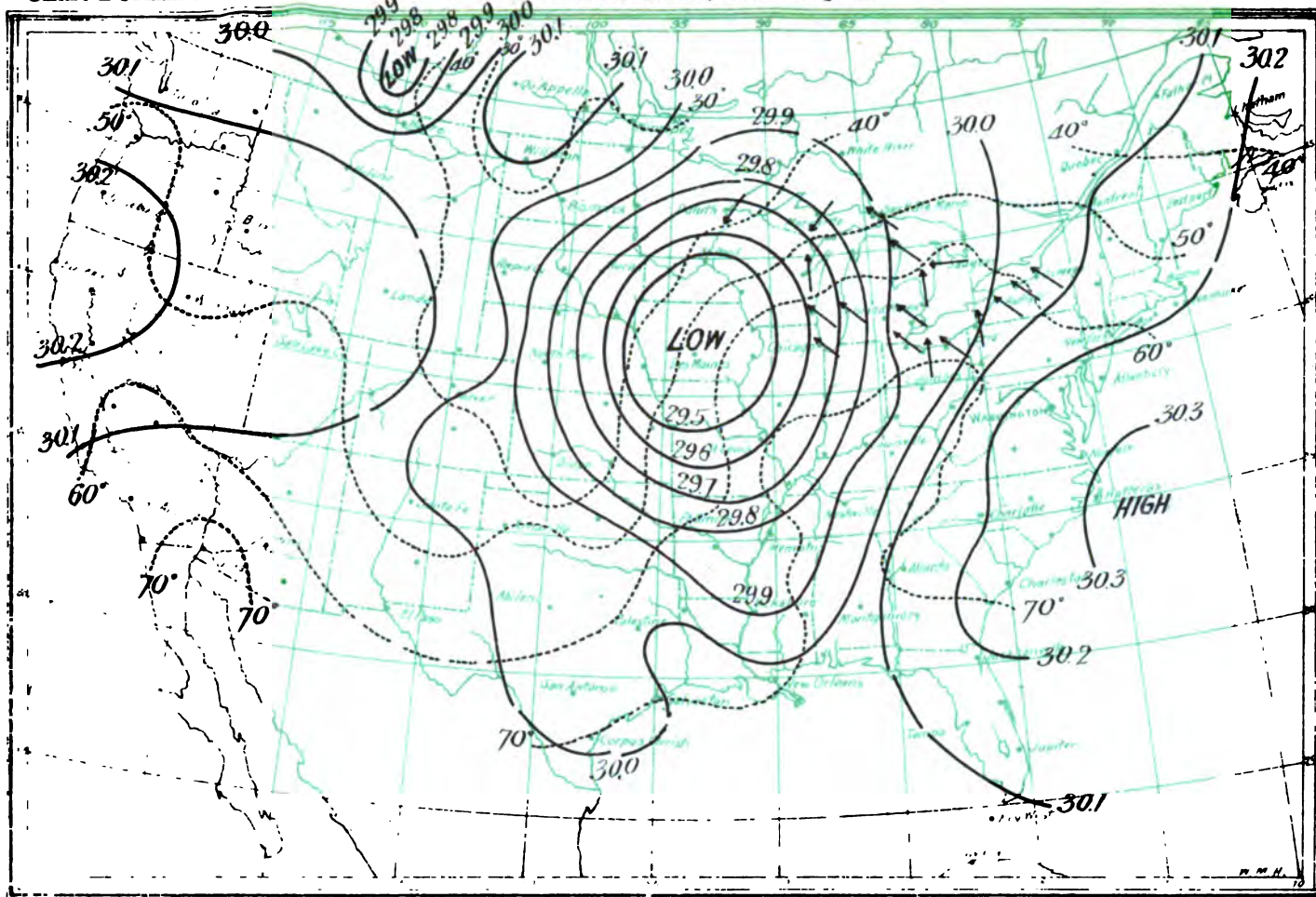


Chart DOXXXVIII.

October 30, 1896—8 a. m.

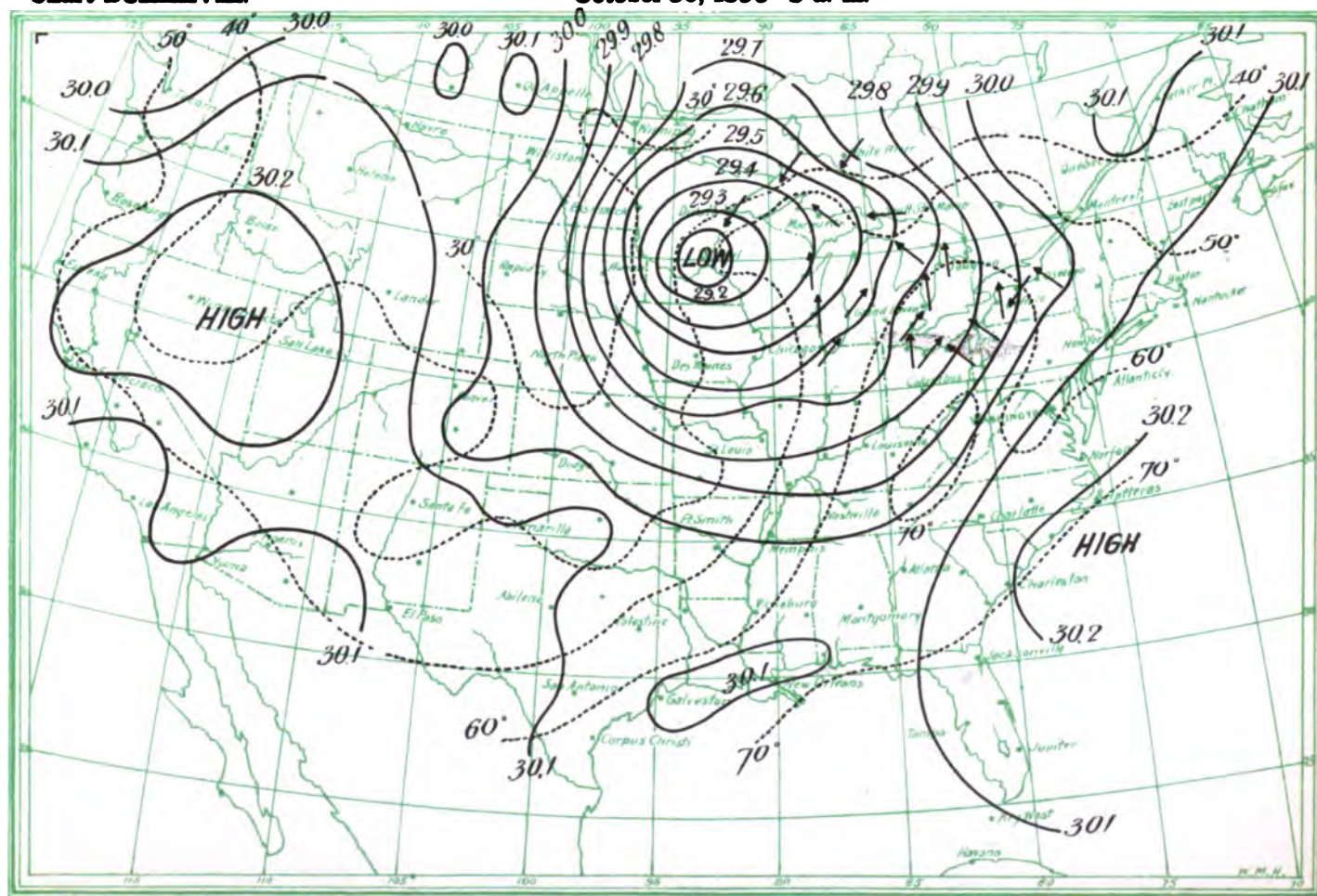


Chart DOXXXIX.

October 30, 1896—8 p. m.

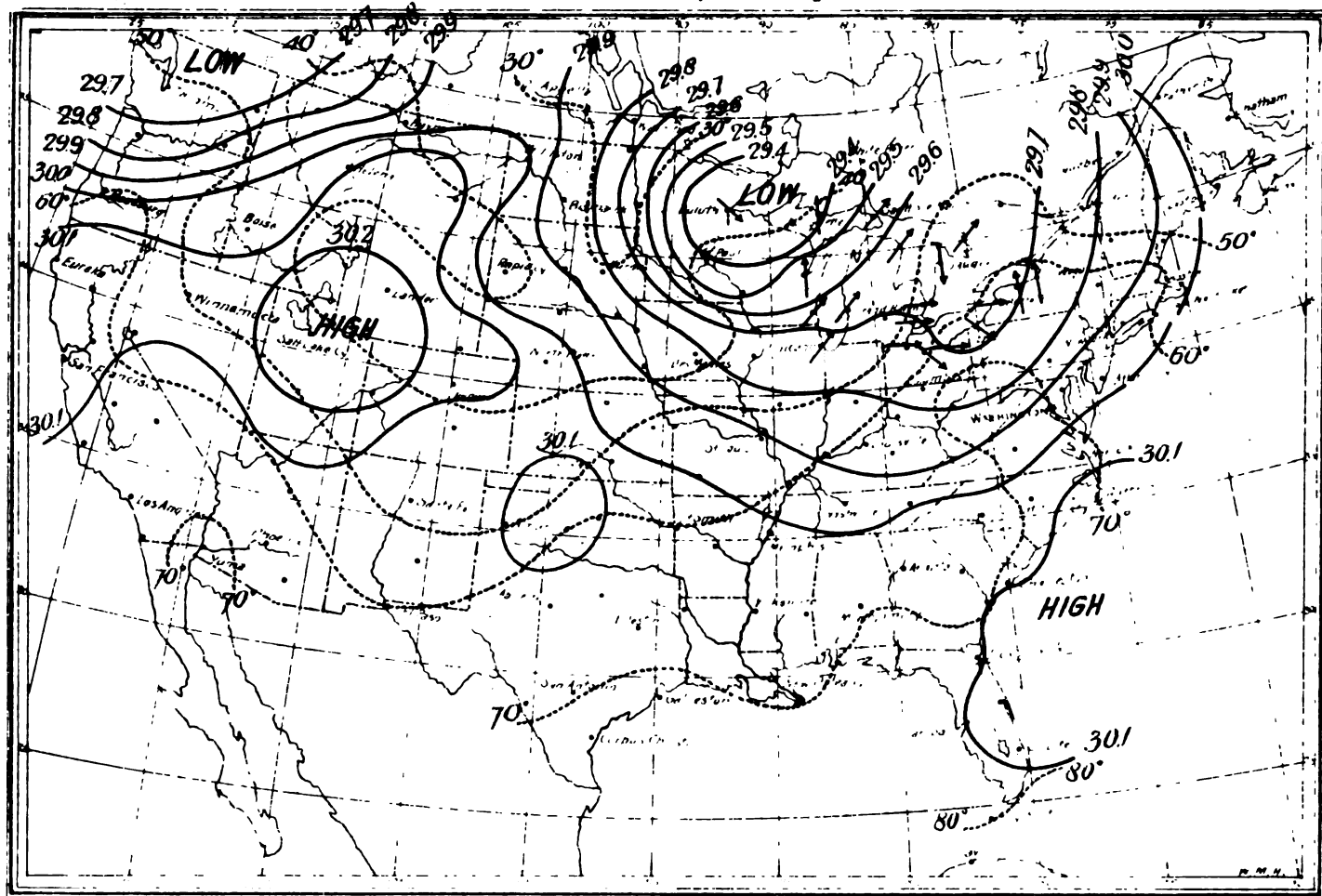


Chart DOXL.

October 31, 1896—8 a. m.

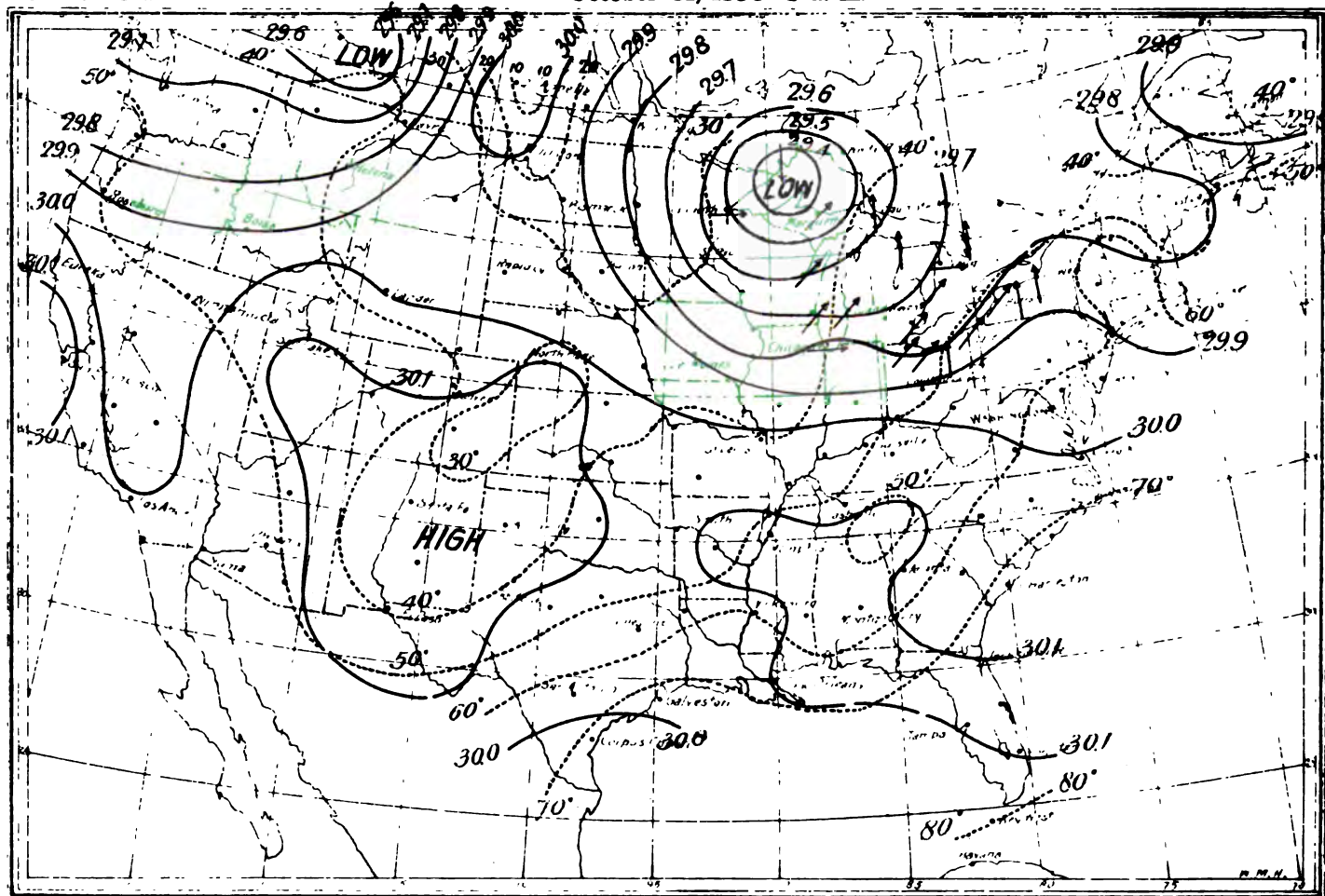


Chart DOXLI.

October 17, 1898—8 a. m.

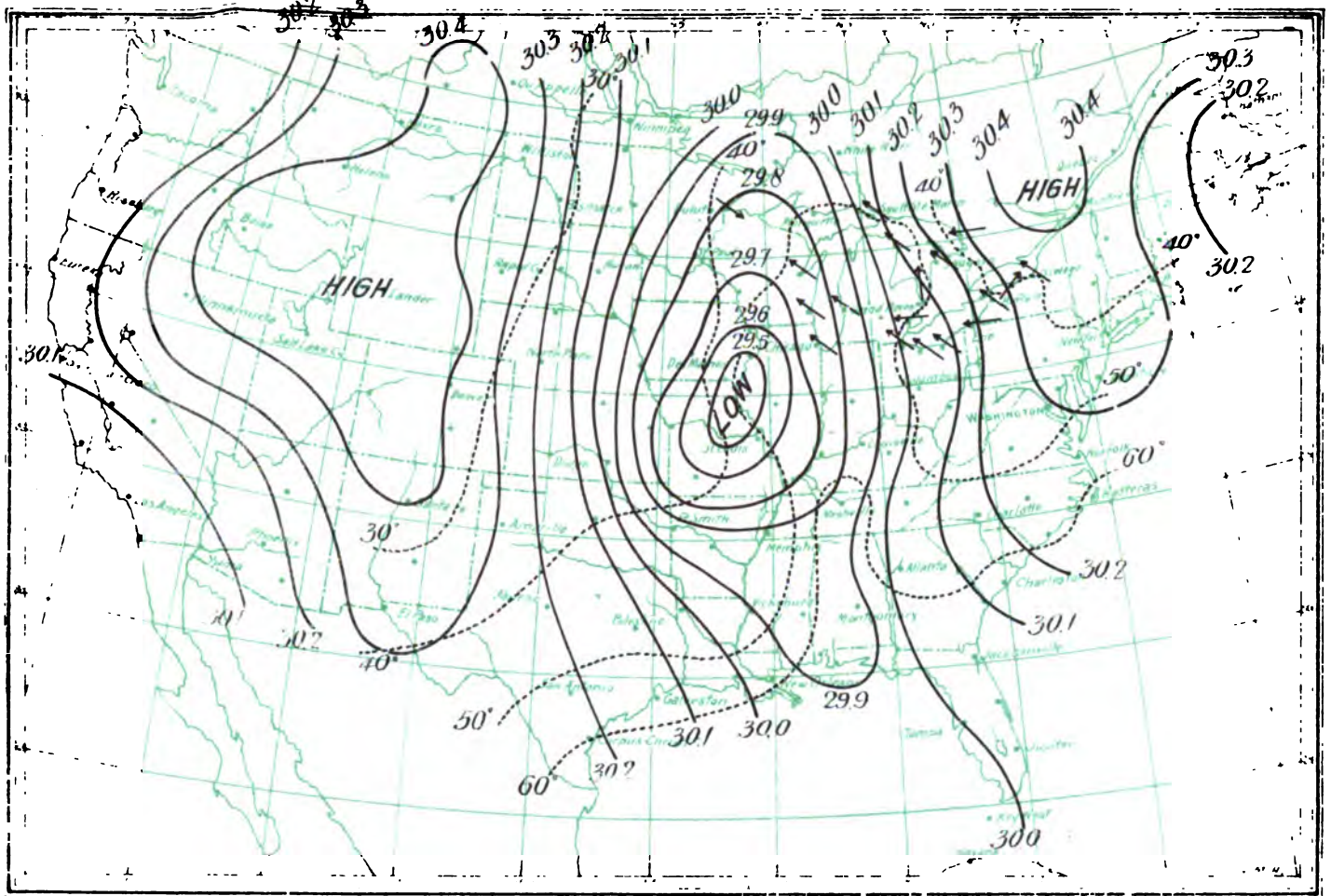


Chart DOXLII.

October 17, 1898—8 p. m.

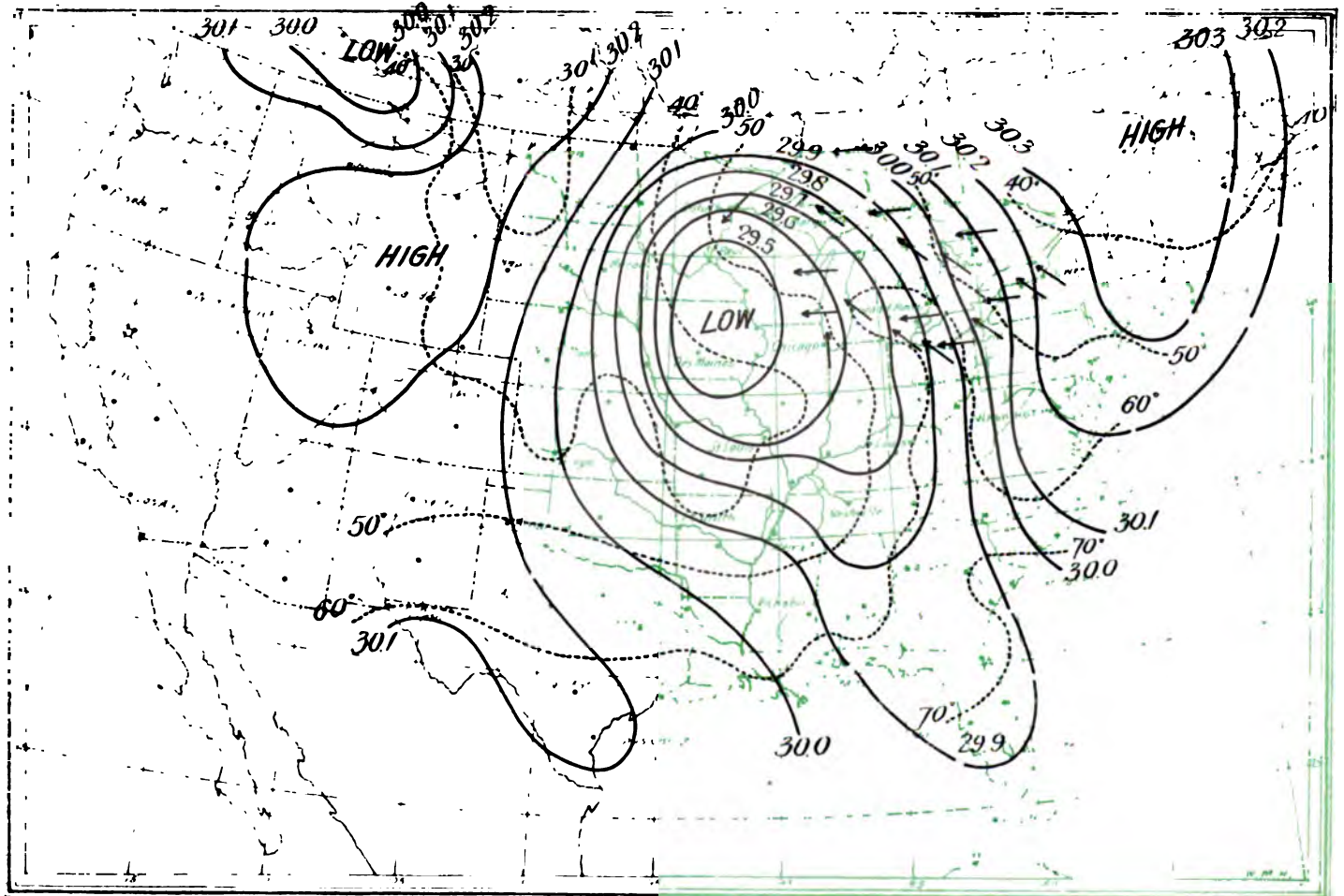


Chart DOXLIII.

October 18, 1898—8 a. m.

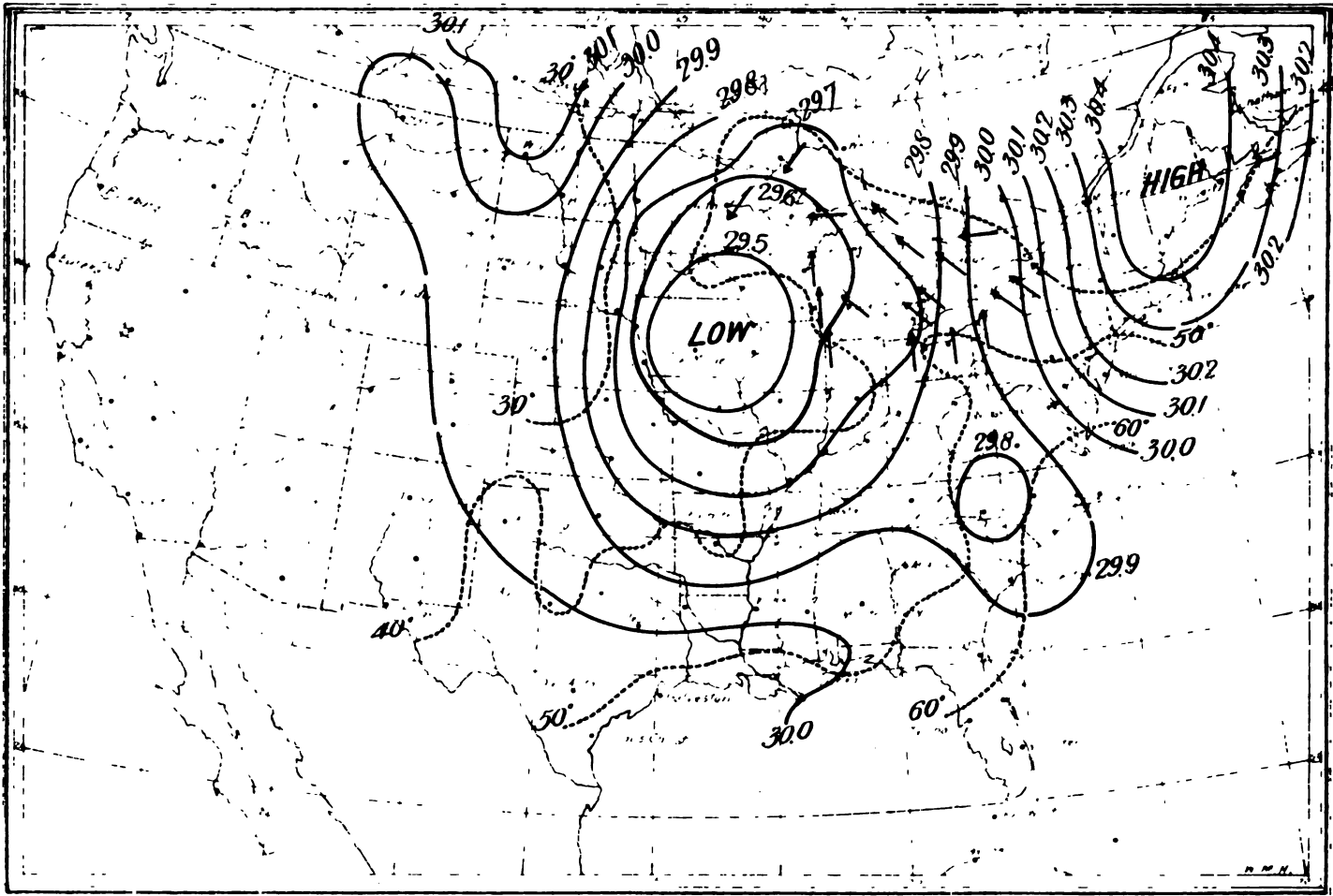


Chart DOXLIV.

October 18, 1898—8 p. m.

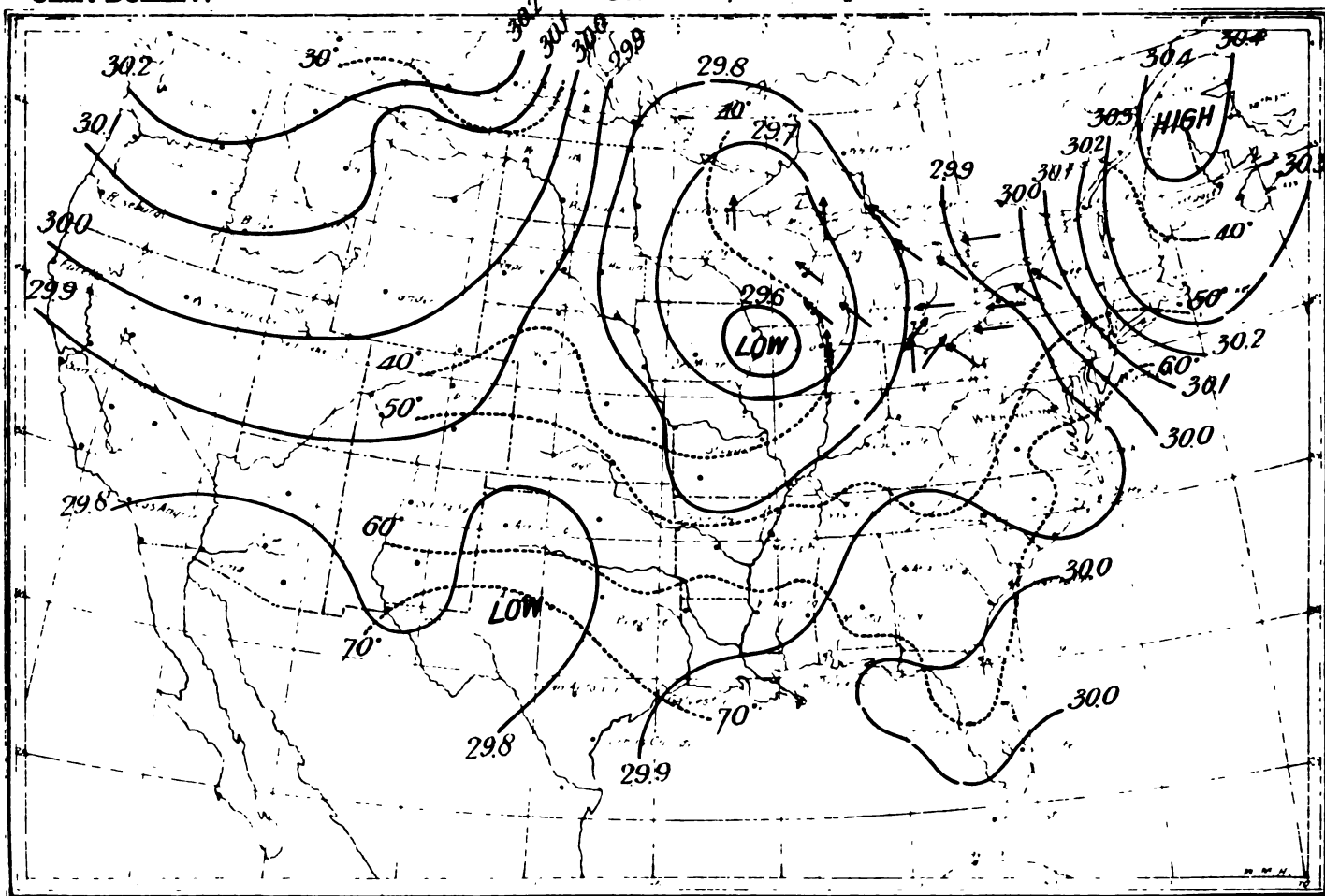


Chart DOXLV.

October 24, 1898—8 a. m.

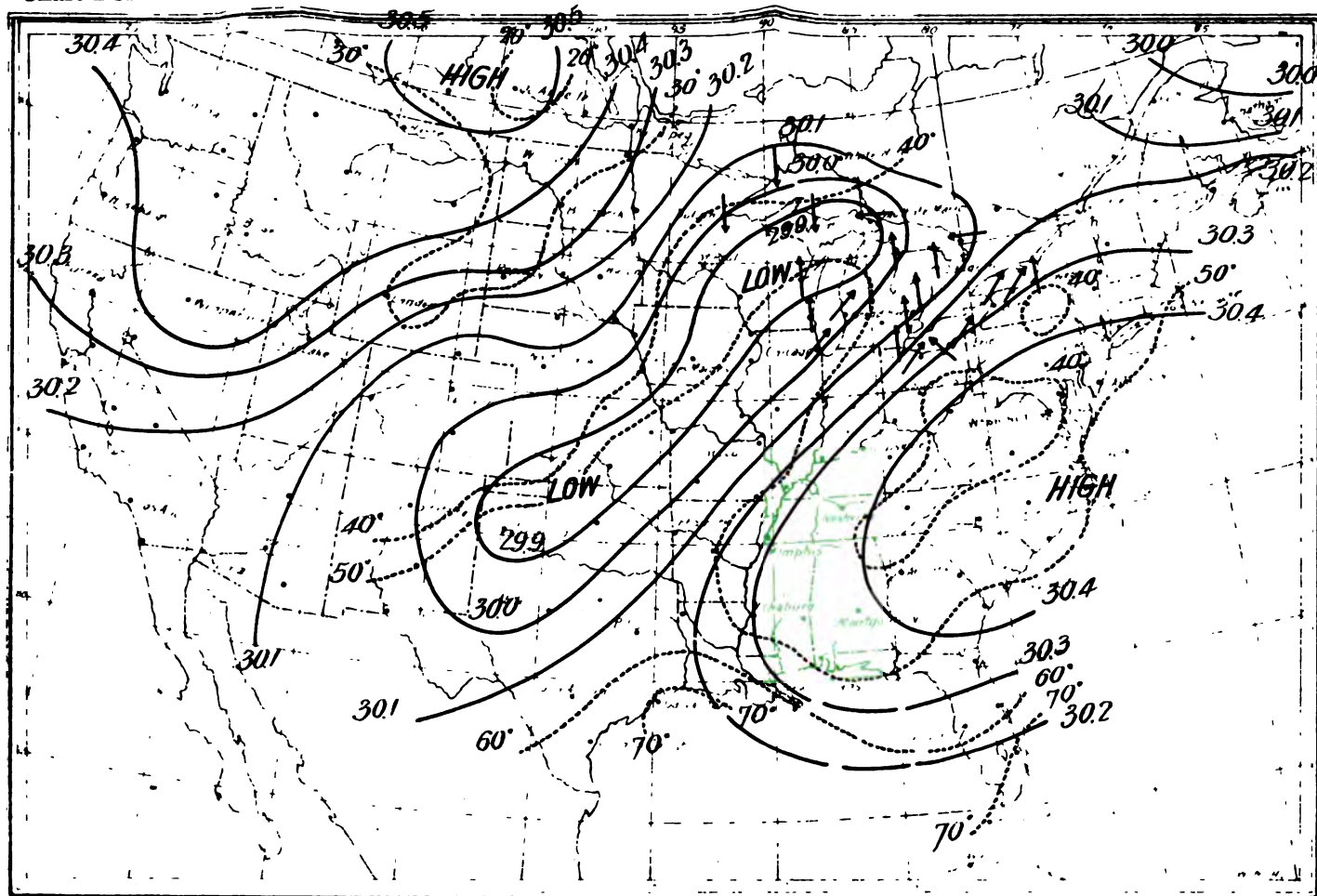


Chart DOXLVI.

October 24, 1898—8 p. m.

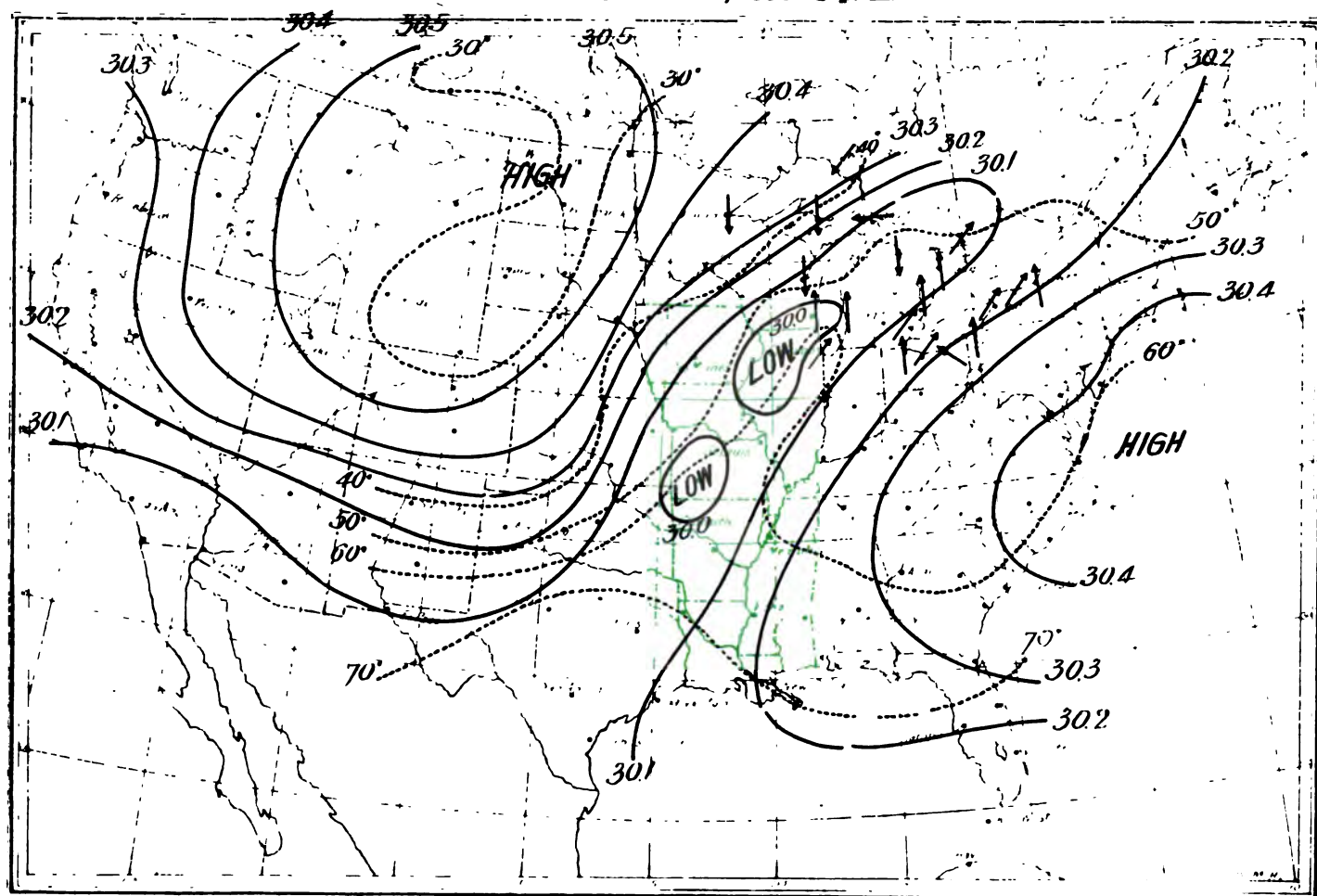


Chart DOXLVII.

October 25, 1898—8 a. m.

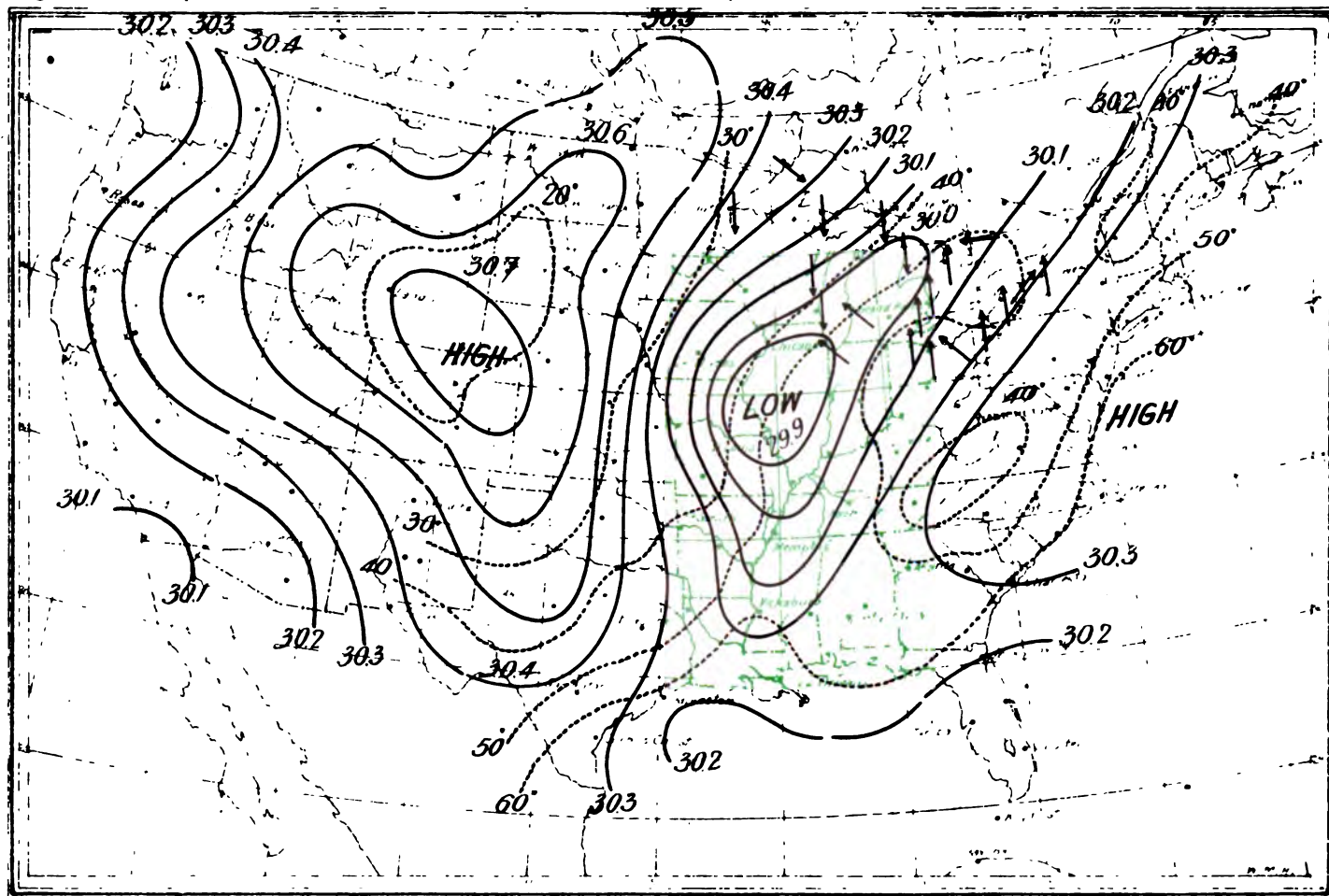


Chart DOXLVIII.

October 25, 1898—8 p. m.

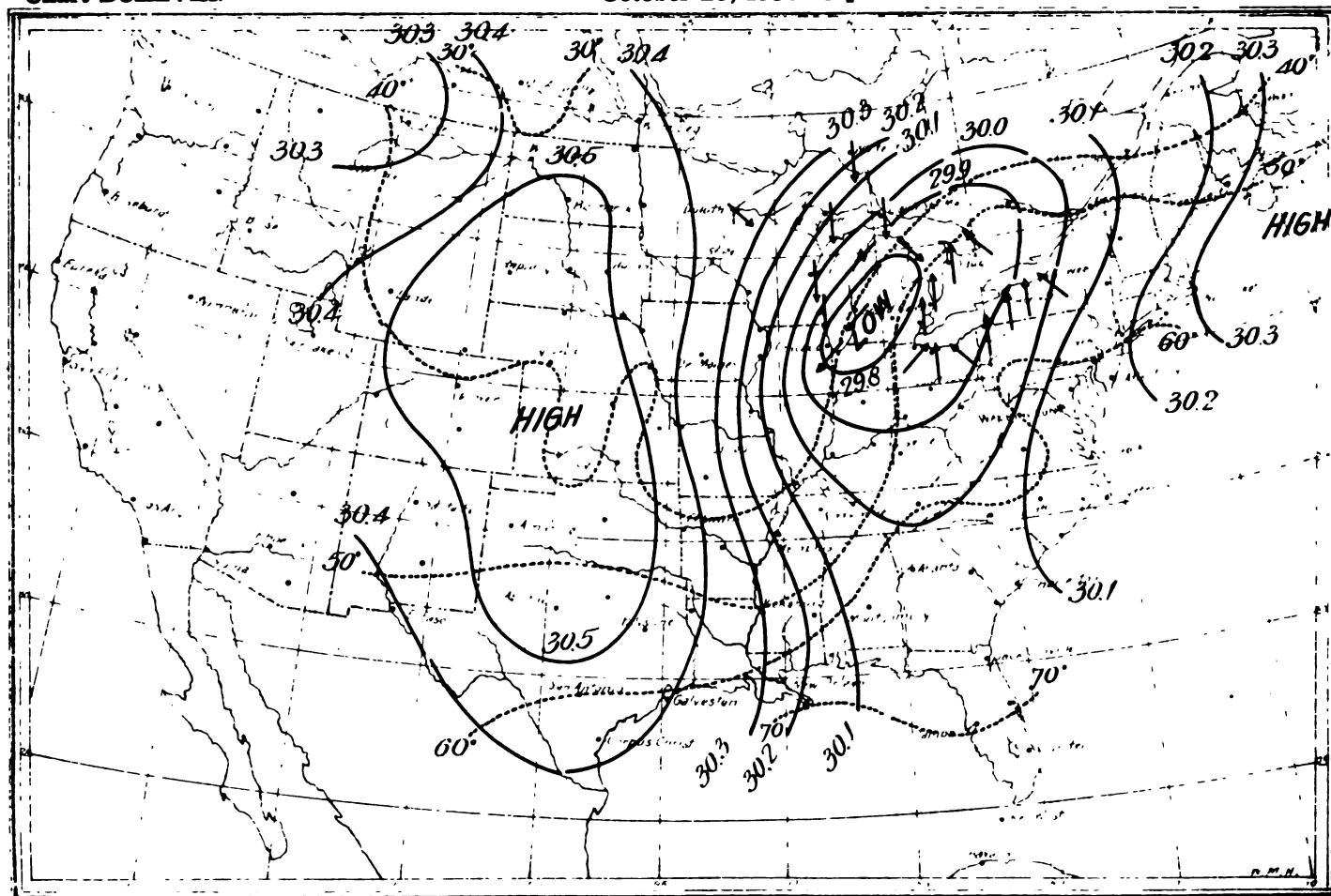


Chart DOXLIX.

November 1, 1876 7:35 a. m.

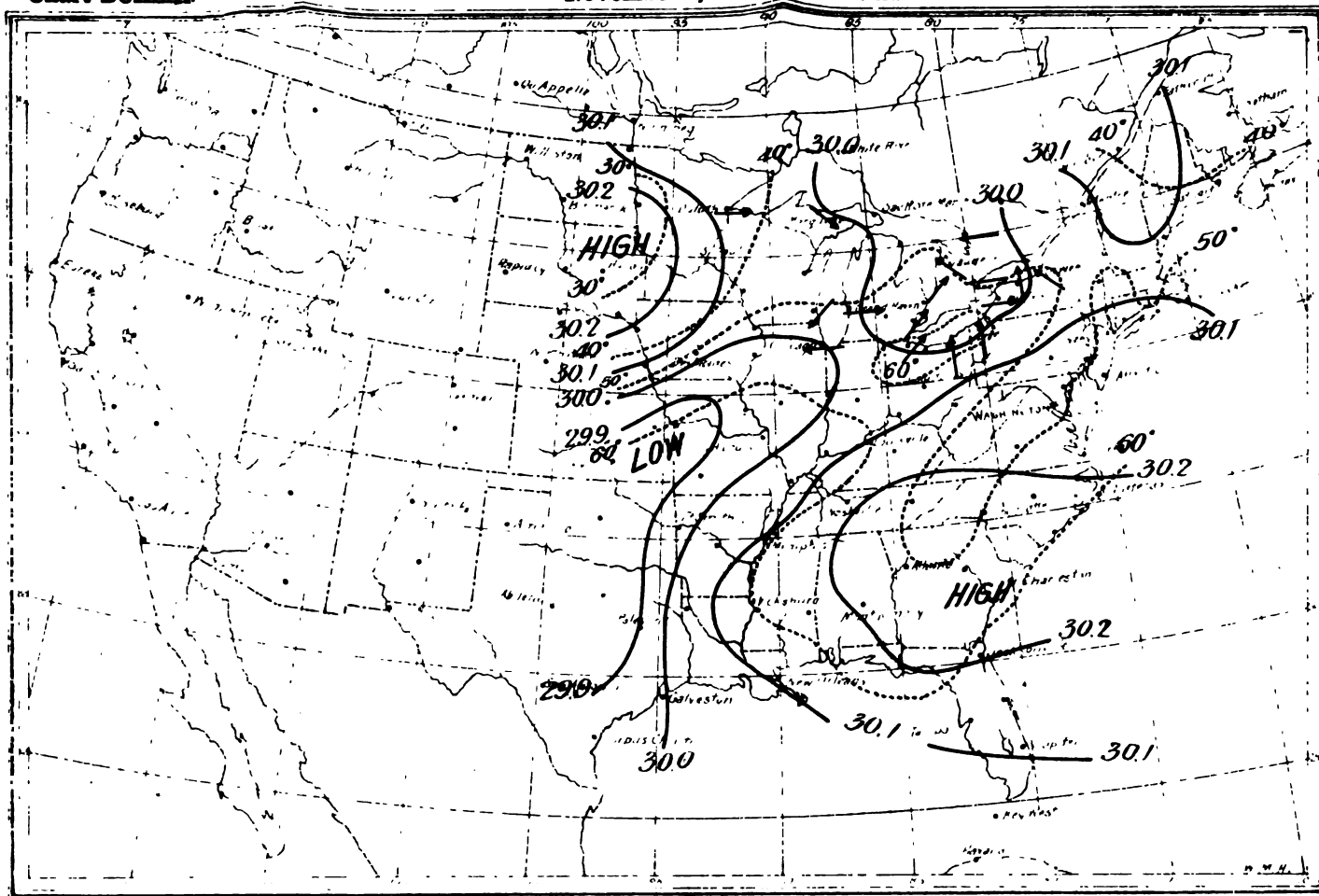


Chart DOL.

November 1, 1876 4:35 p. m.

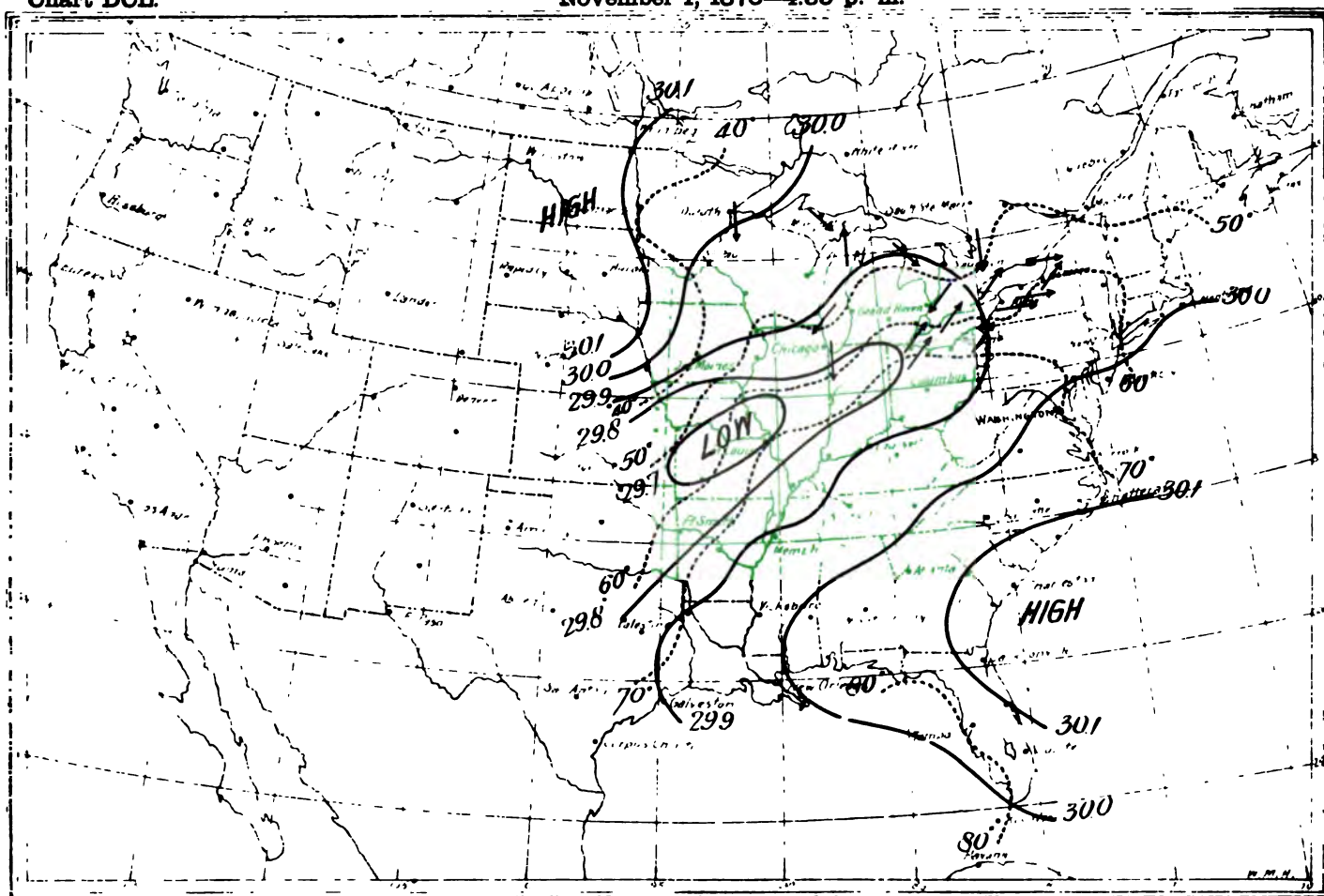


Chart DOLI.

November 2, 1876—7:35 a. m.

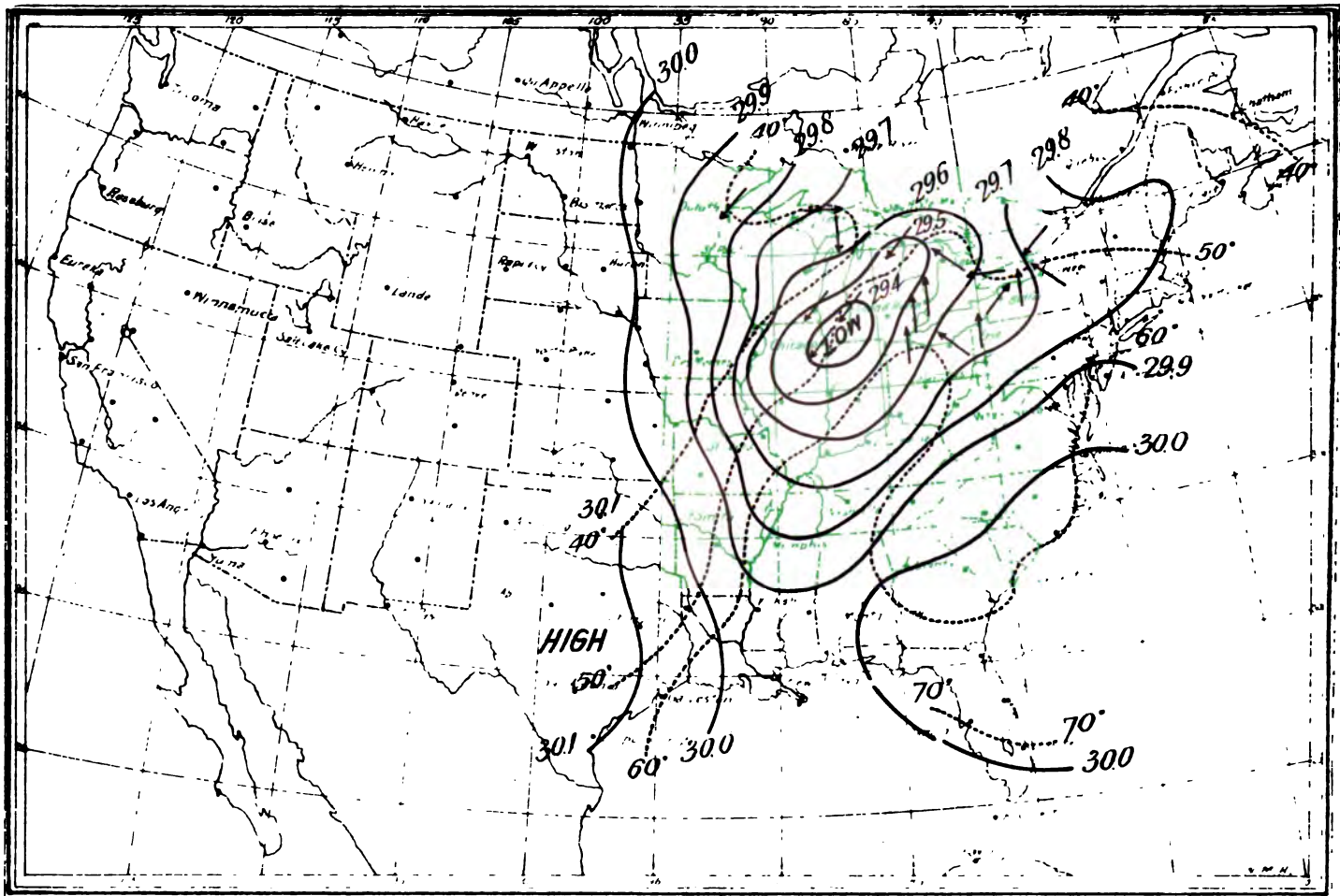


Chart DOLII.

November 2, 1876—4:35 p. m.

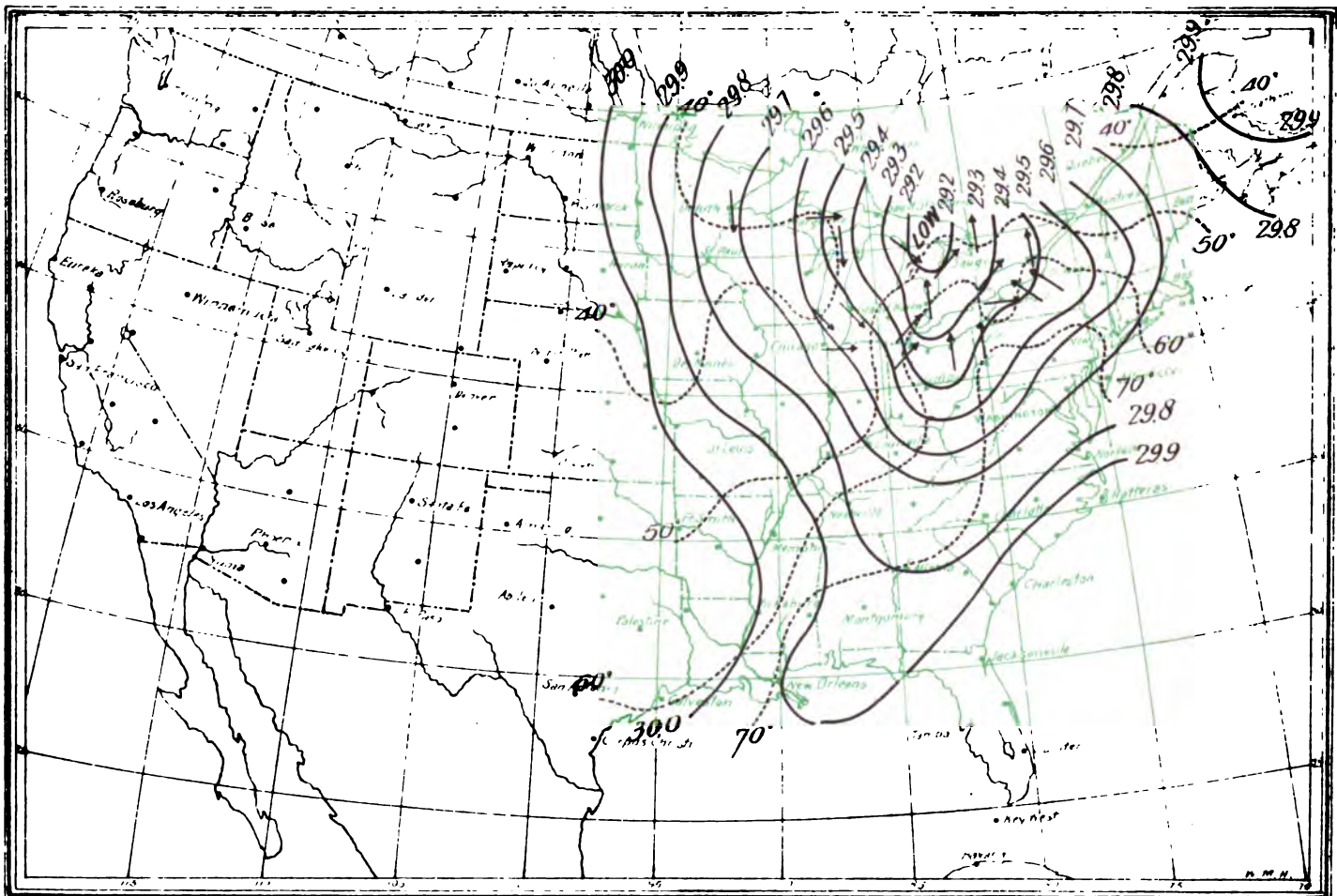


Chart DOLIII.

November 1, 1877—7:35 a. m.

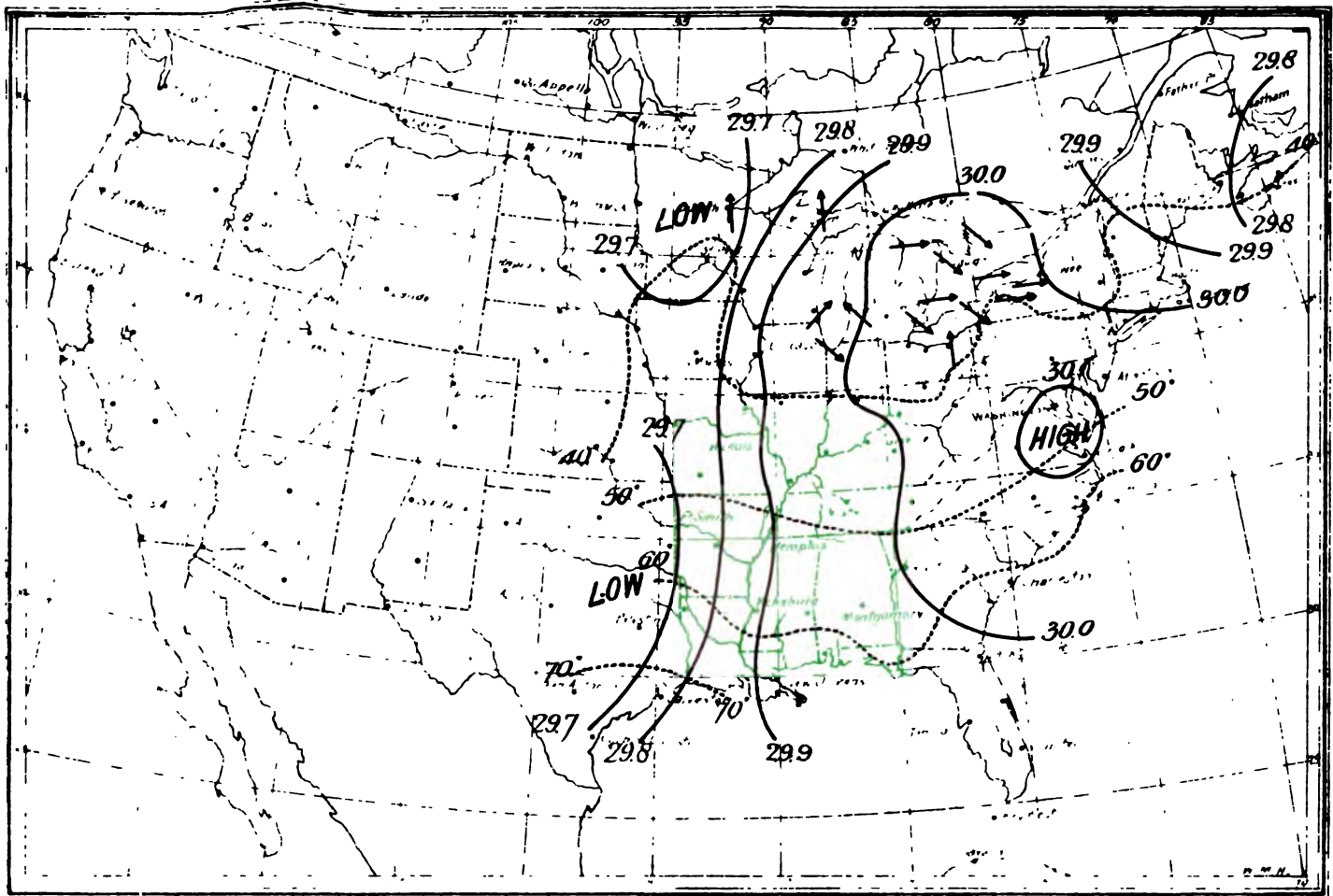


Chart DOLIV.

November 1, 1877—4:35 p. m.

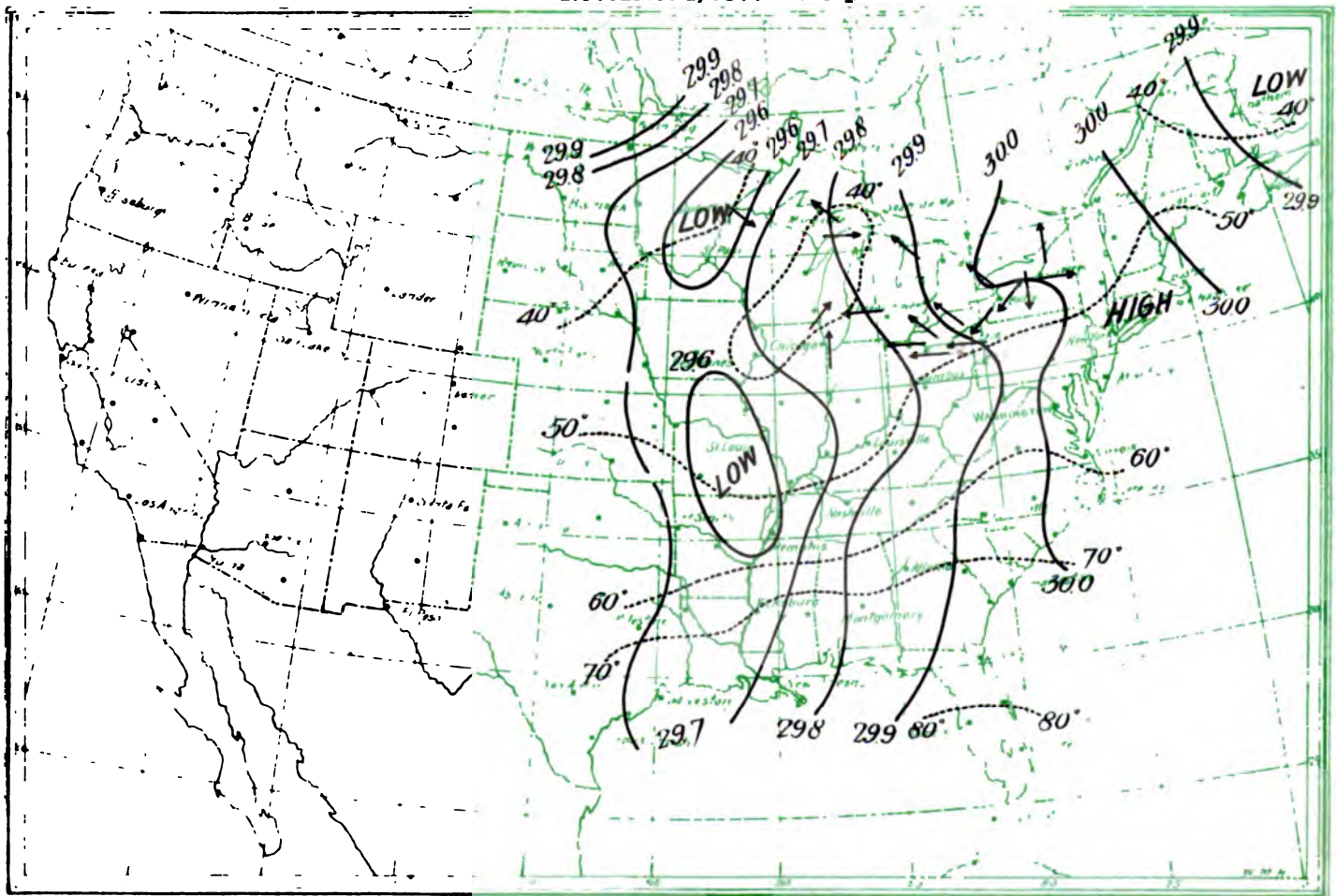


Chart DOLV.

November 2, 1877—7:35 a. m.

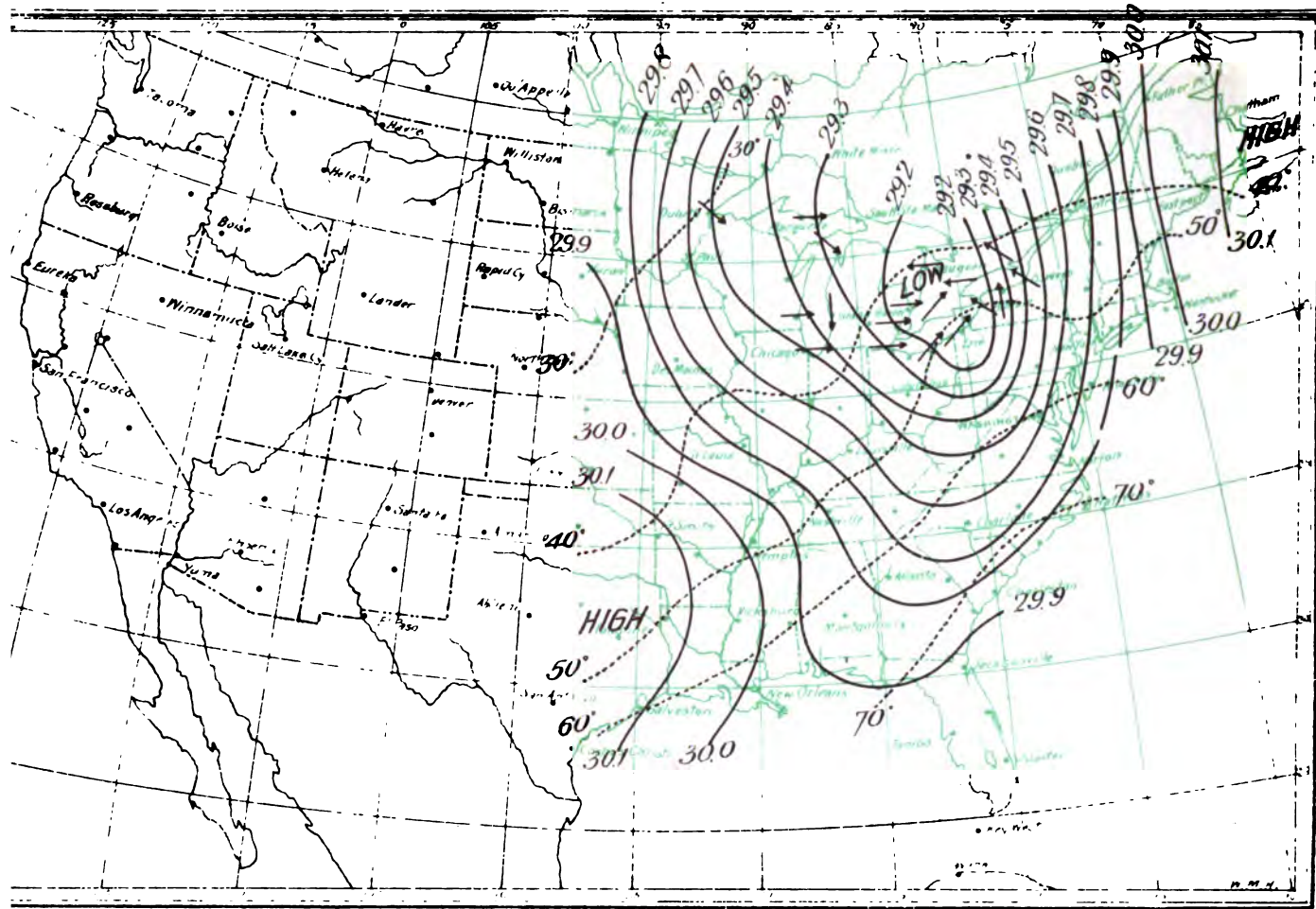


Chart DOLVI.

November 2, 1877—4:35 p. m.

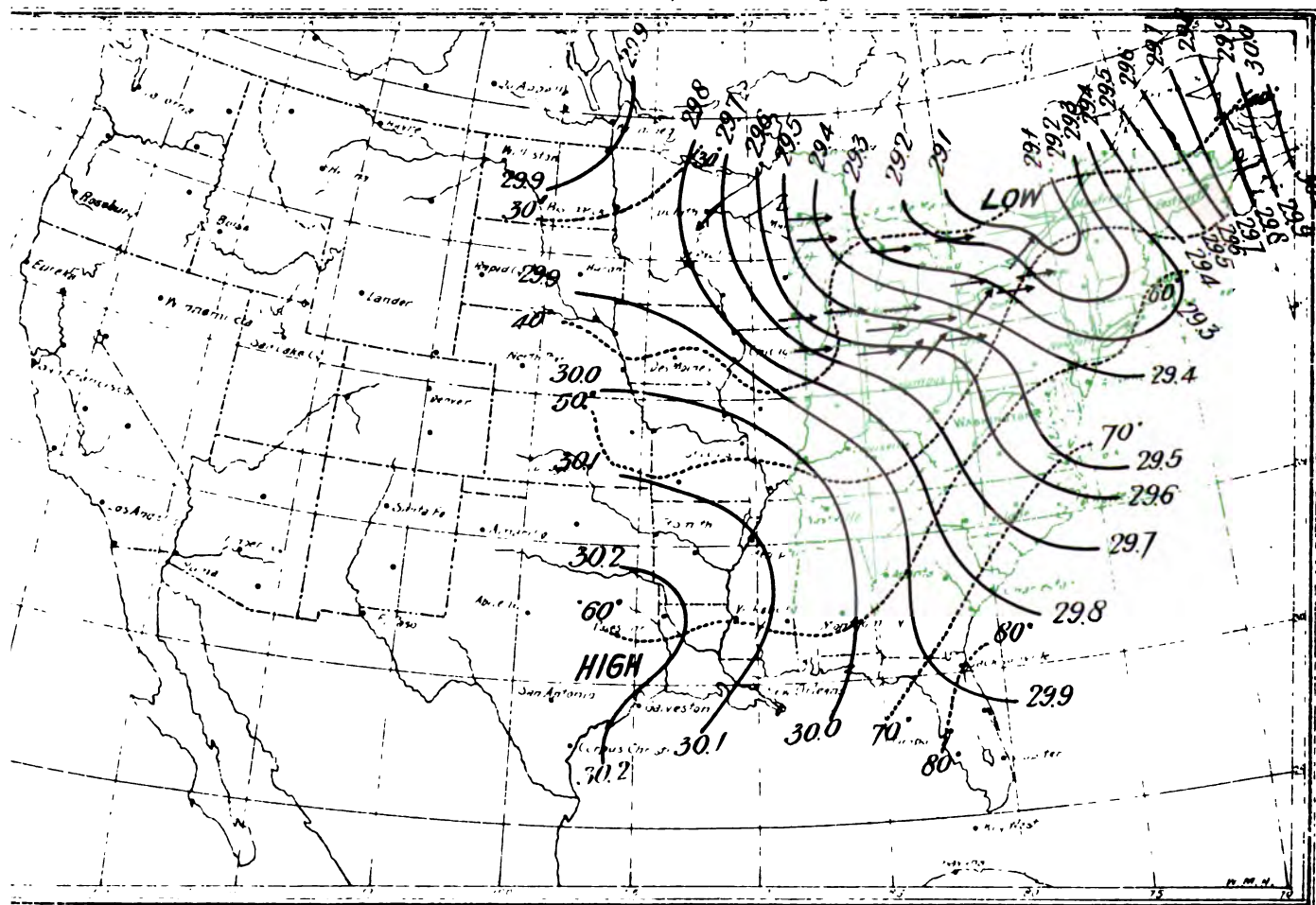


Chart DCLVII.

November 7, 1877—7:35 a. m.

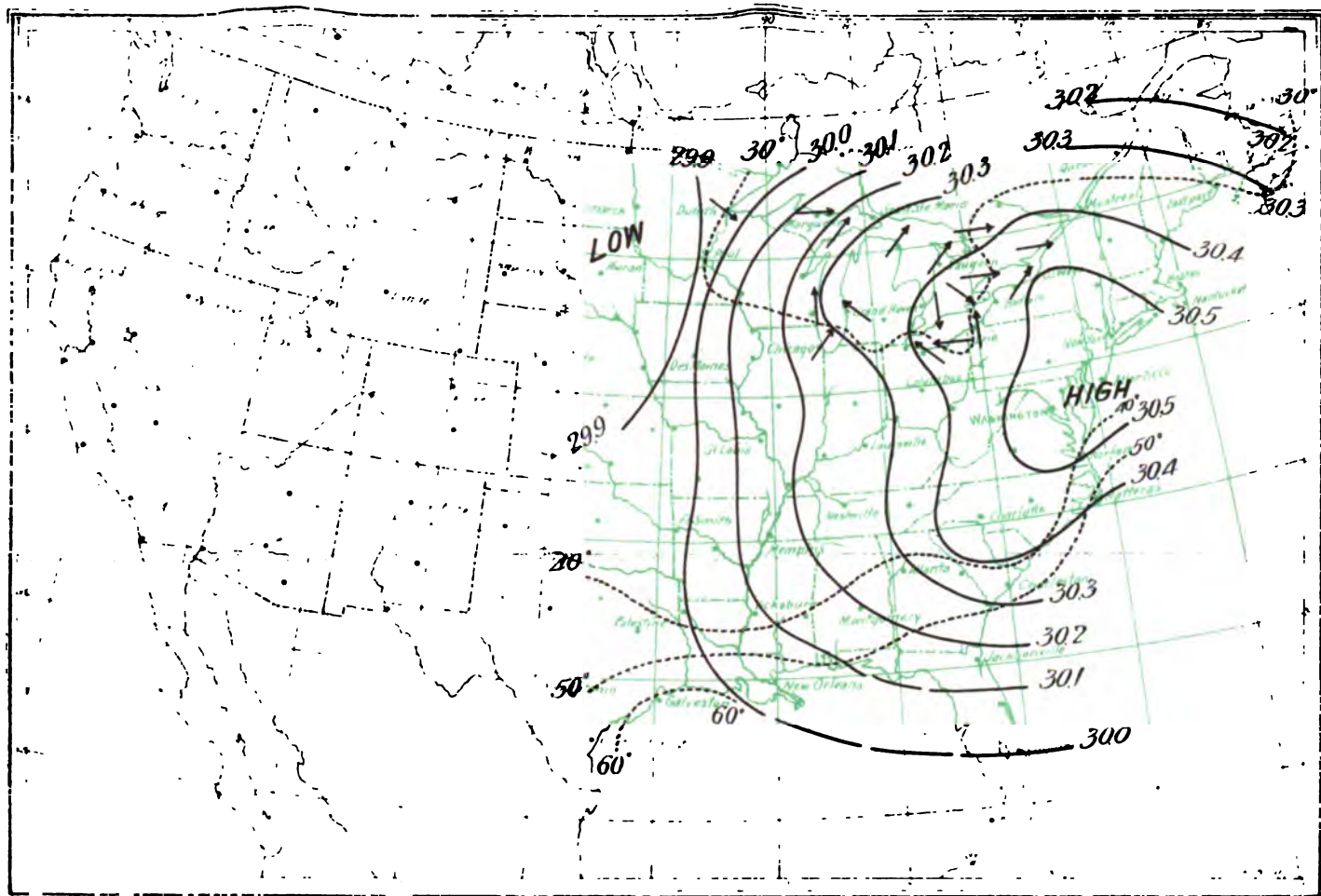


Chart DCLVIII.

November 7, 1877—4:35 p. m.

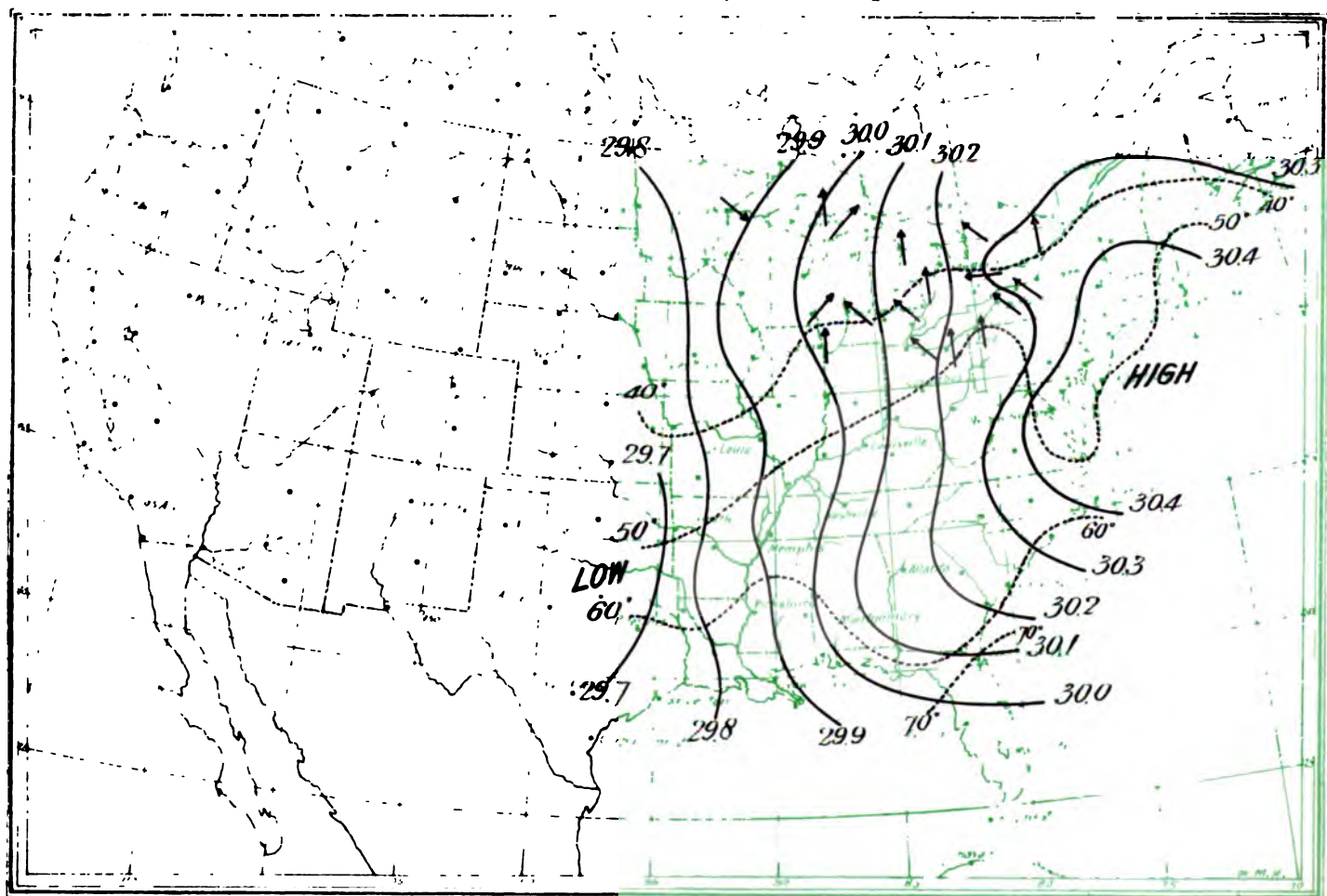


Chart DOLIX.

November 8, 1877—7:35 a. m.

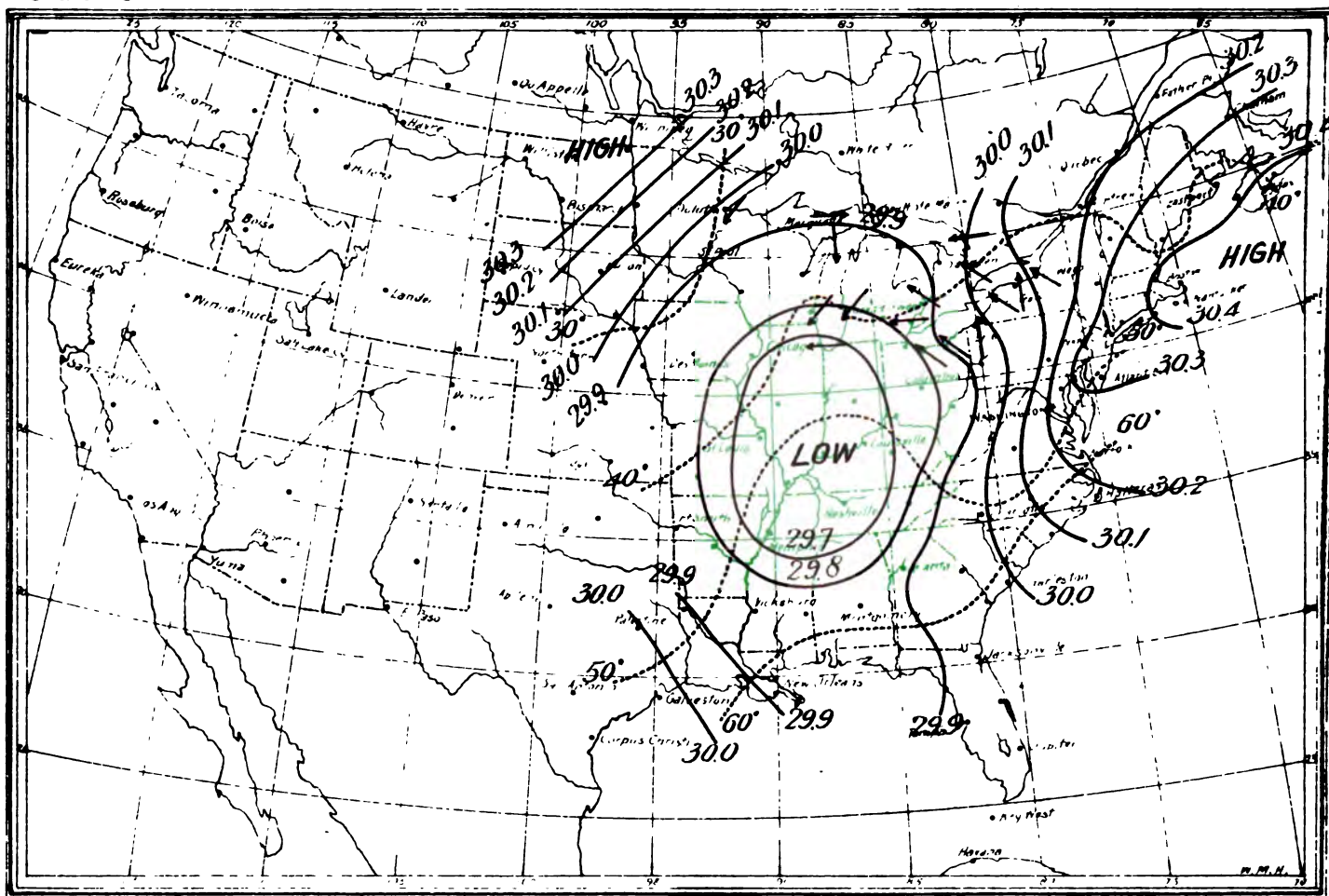


Chart DOLIX.

November 8, 1877—4:35 p. m.

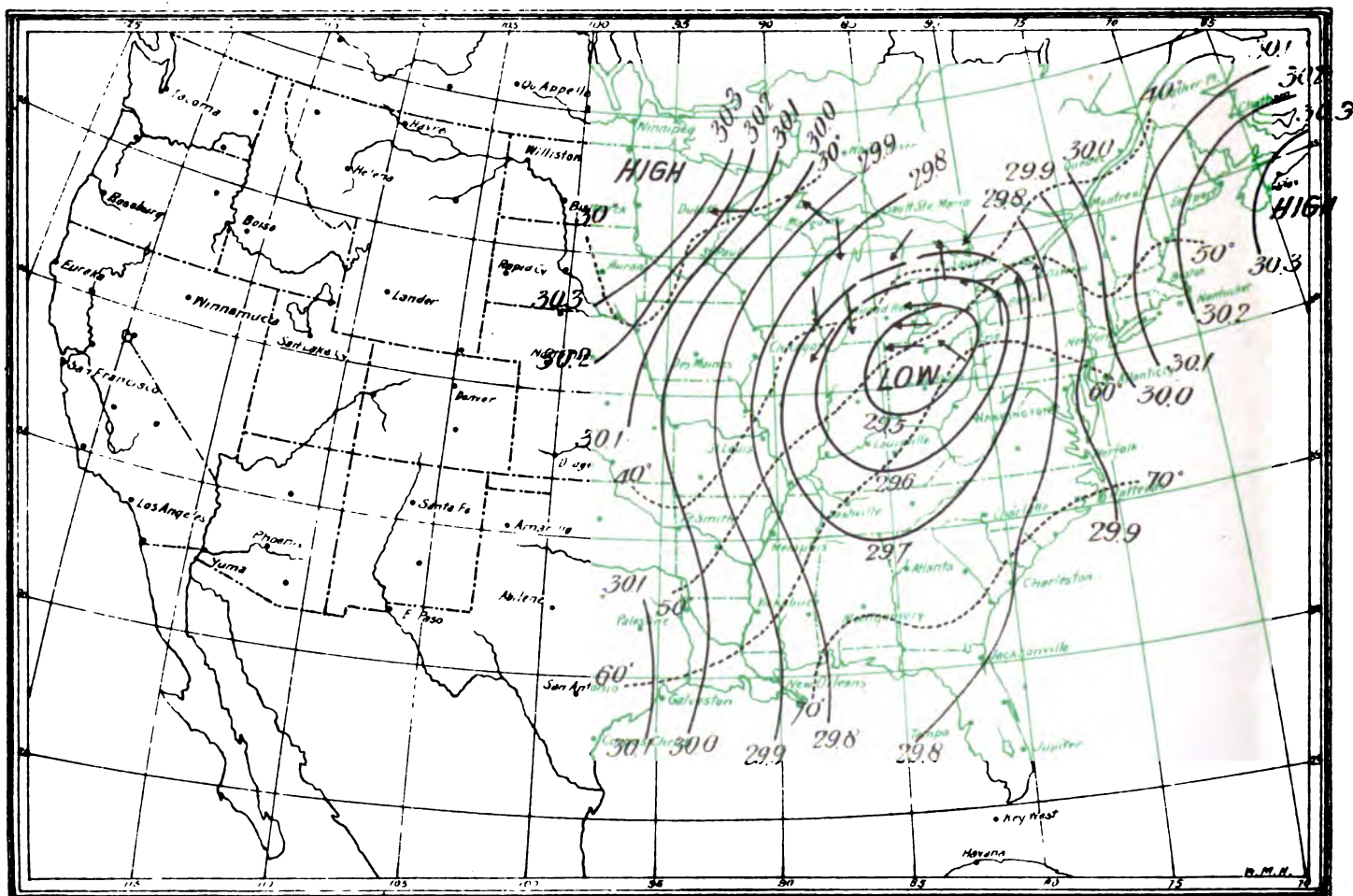


Chart DOLXI.

November 5, 1878—4:35 p. m.

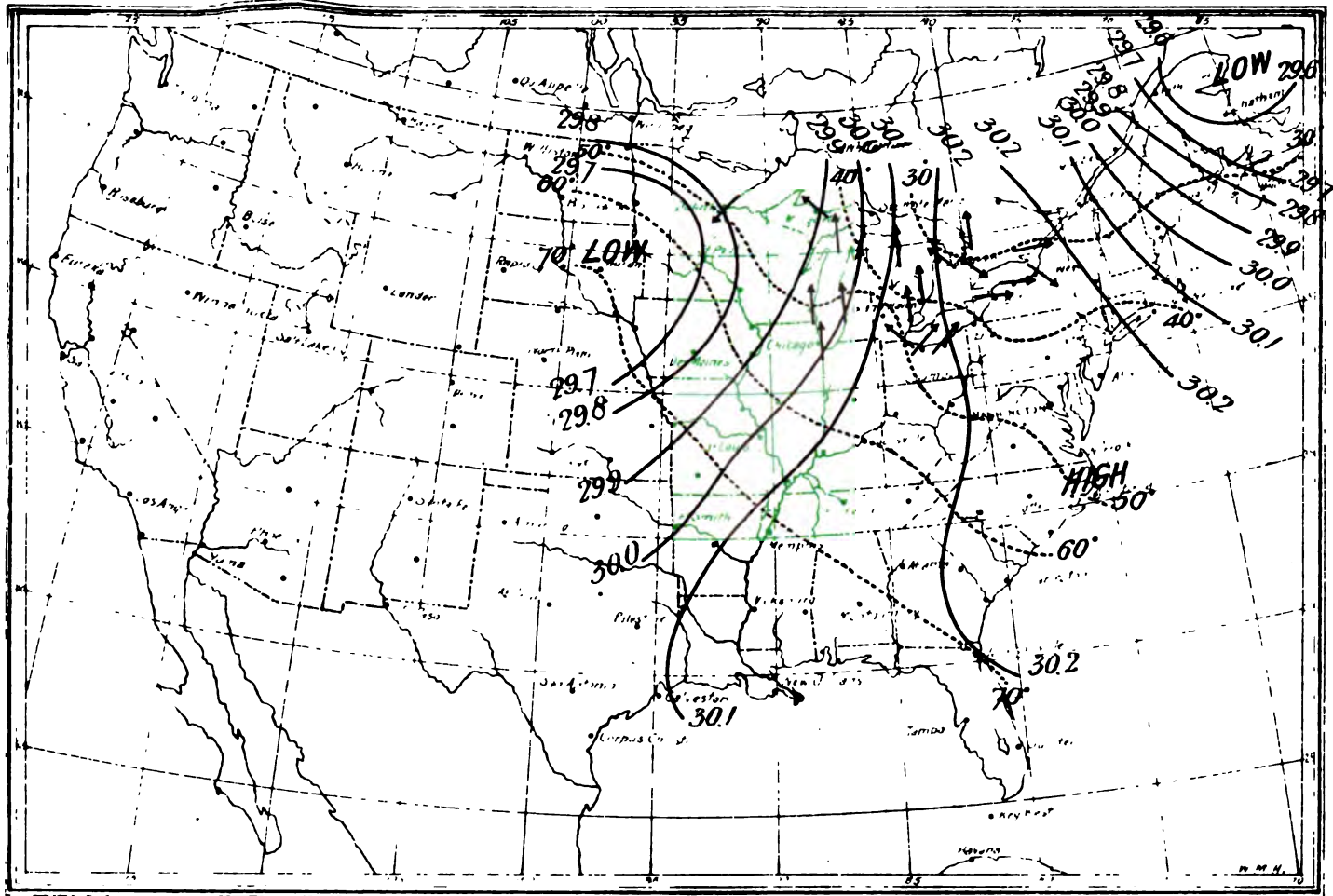


Chart DOLXII.

November 6, 1878—7:35 a. m.

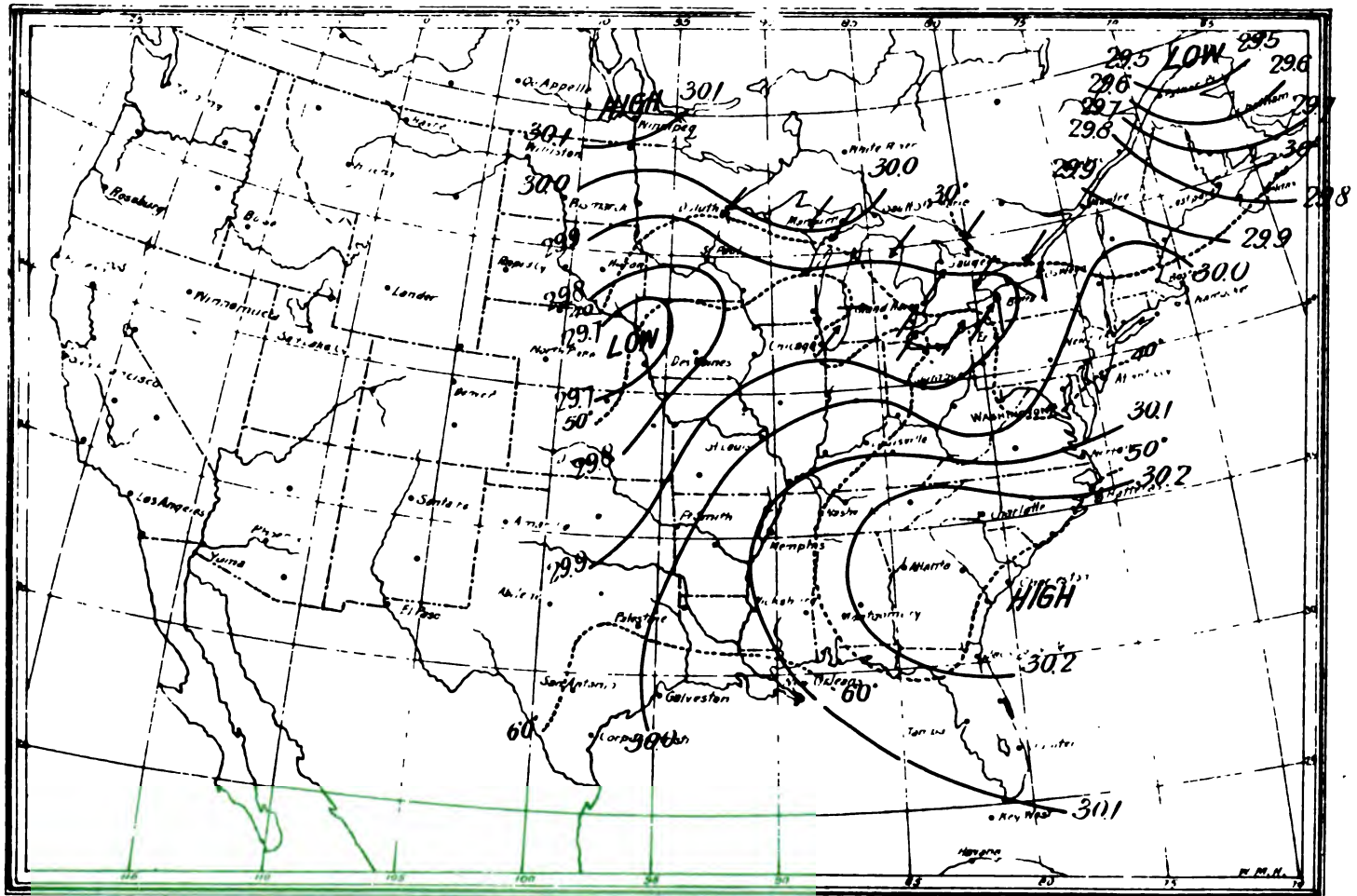


Chart DOLXIII.

November 6, 1878—4:35 p. m.

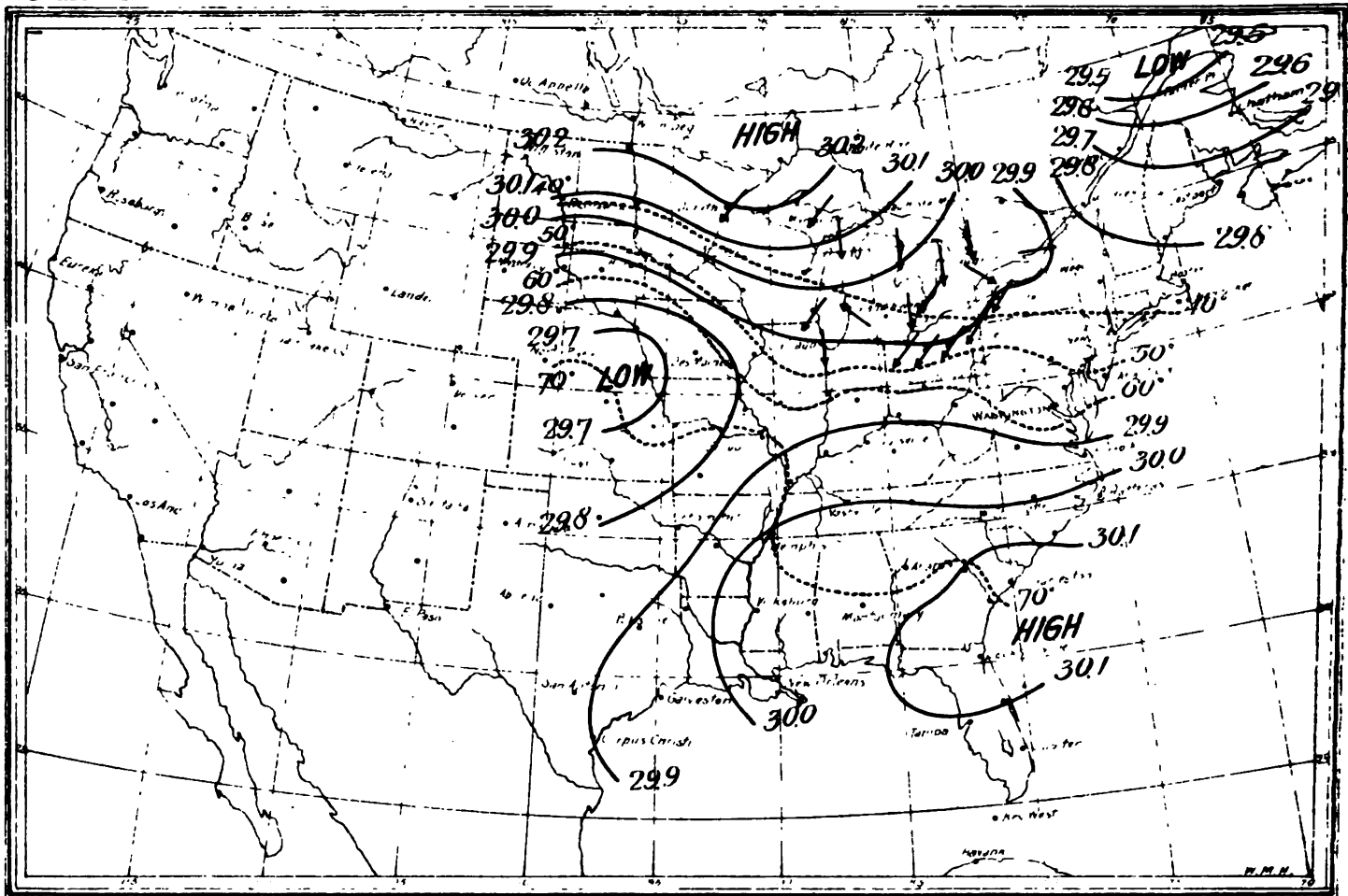


Chart DOLXIV.

November 7, 1878—7:35 a. m.

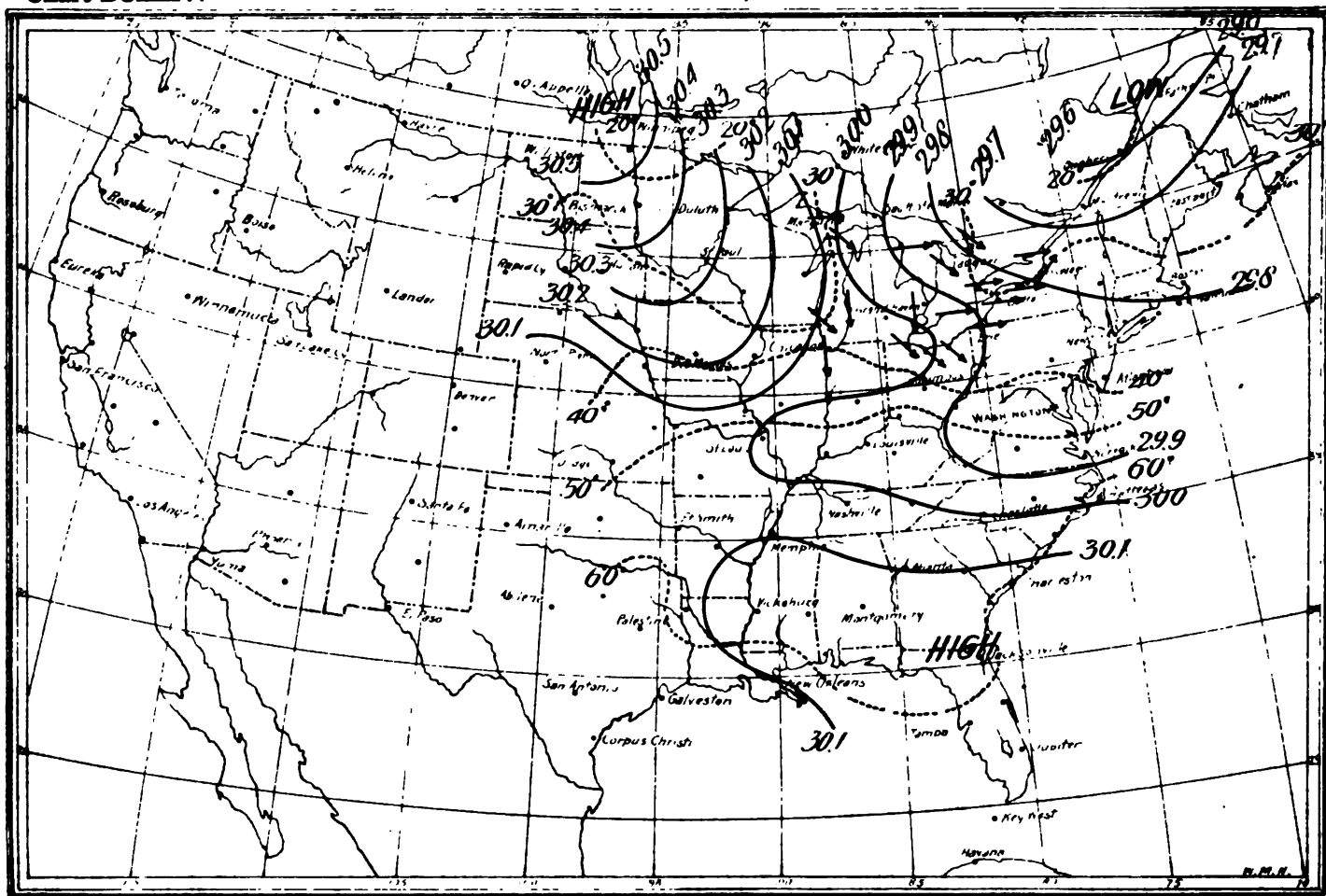


Chart DCLXV.

November 1, 1879—7 a. m.

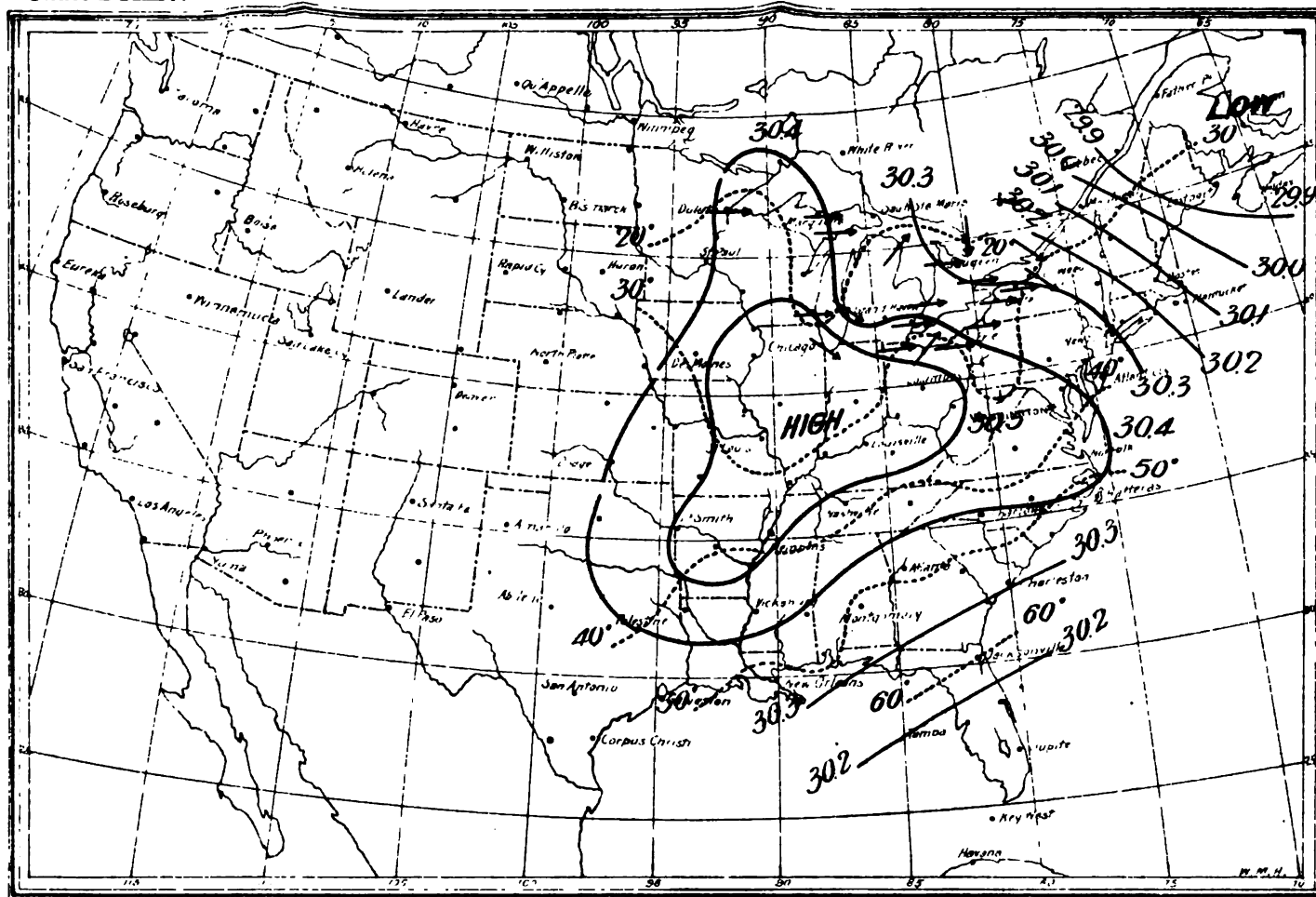


Chart DCLXVI.

November 1, 1879—8 p. m.

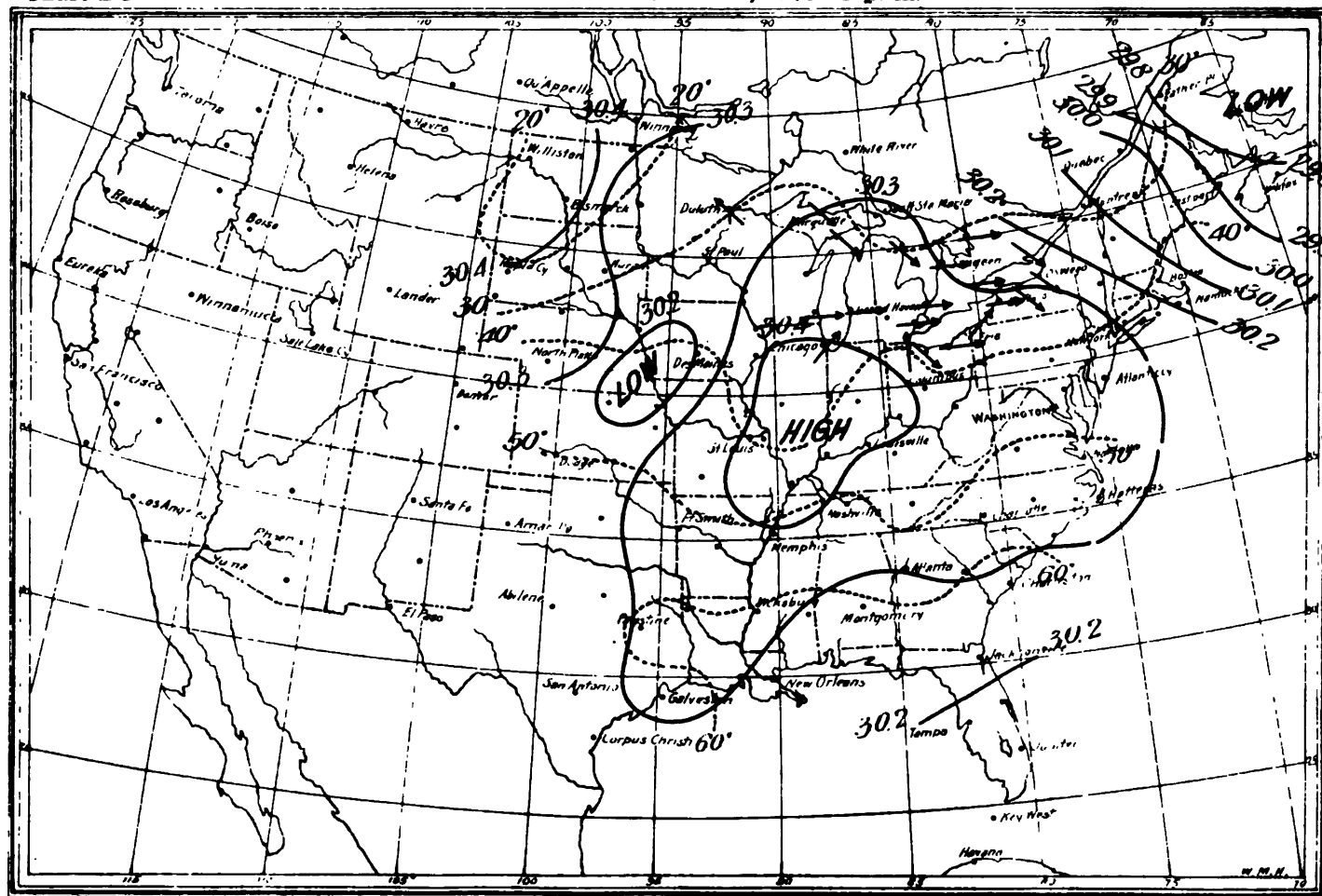


Chart DOLXVII.

November 2, 1879—7 a. m.

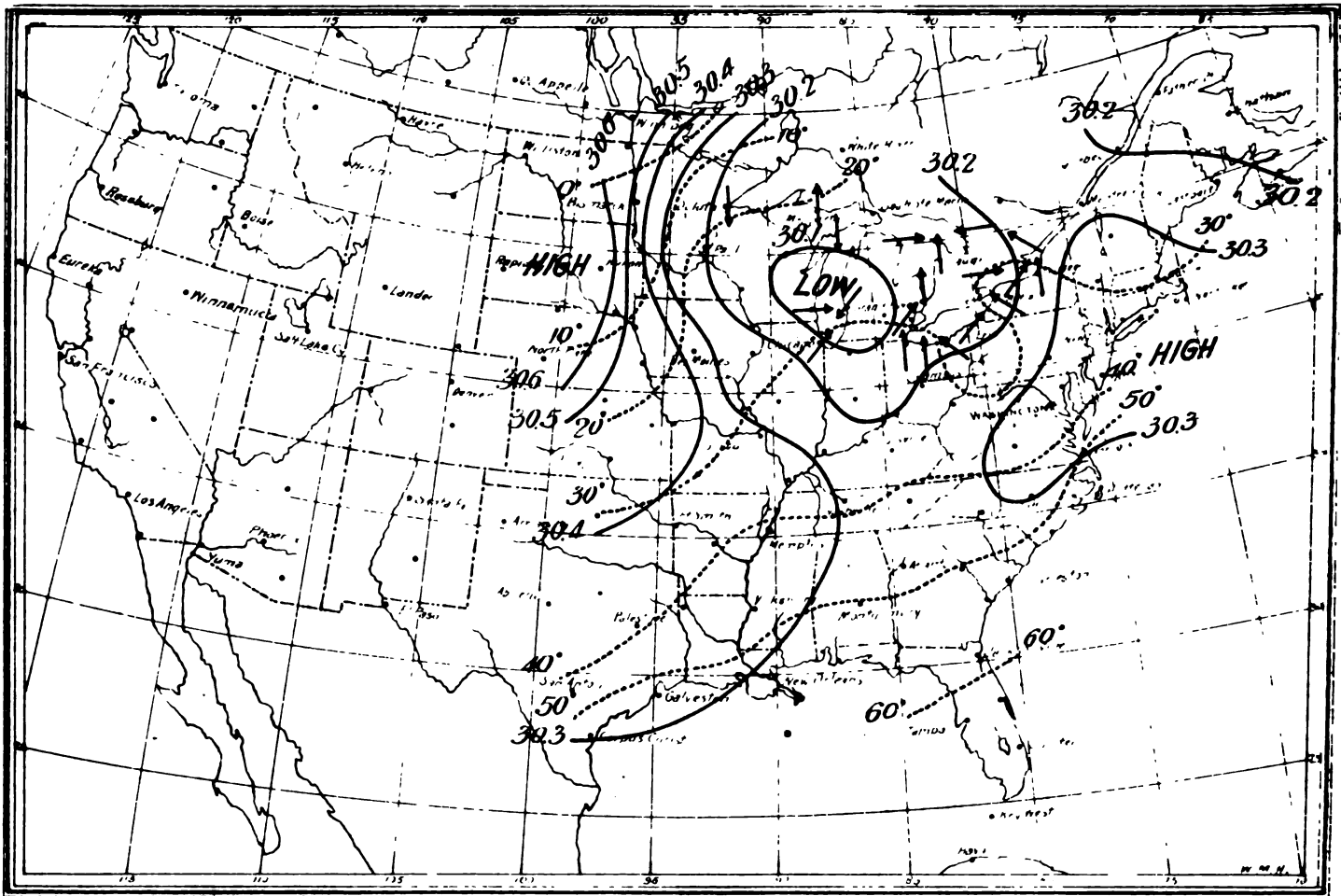


Chart DOLXVIII.

November 2, 1879—3 p. m.

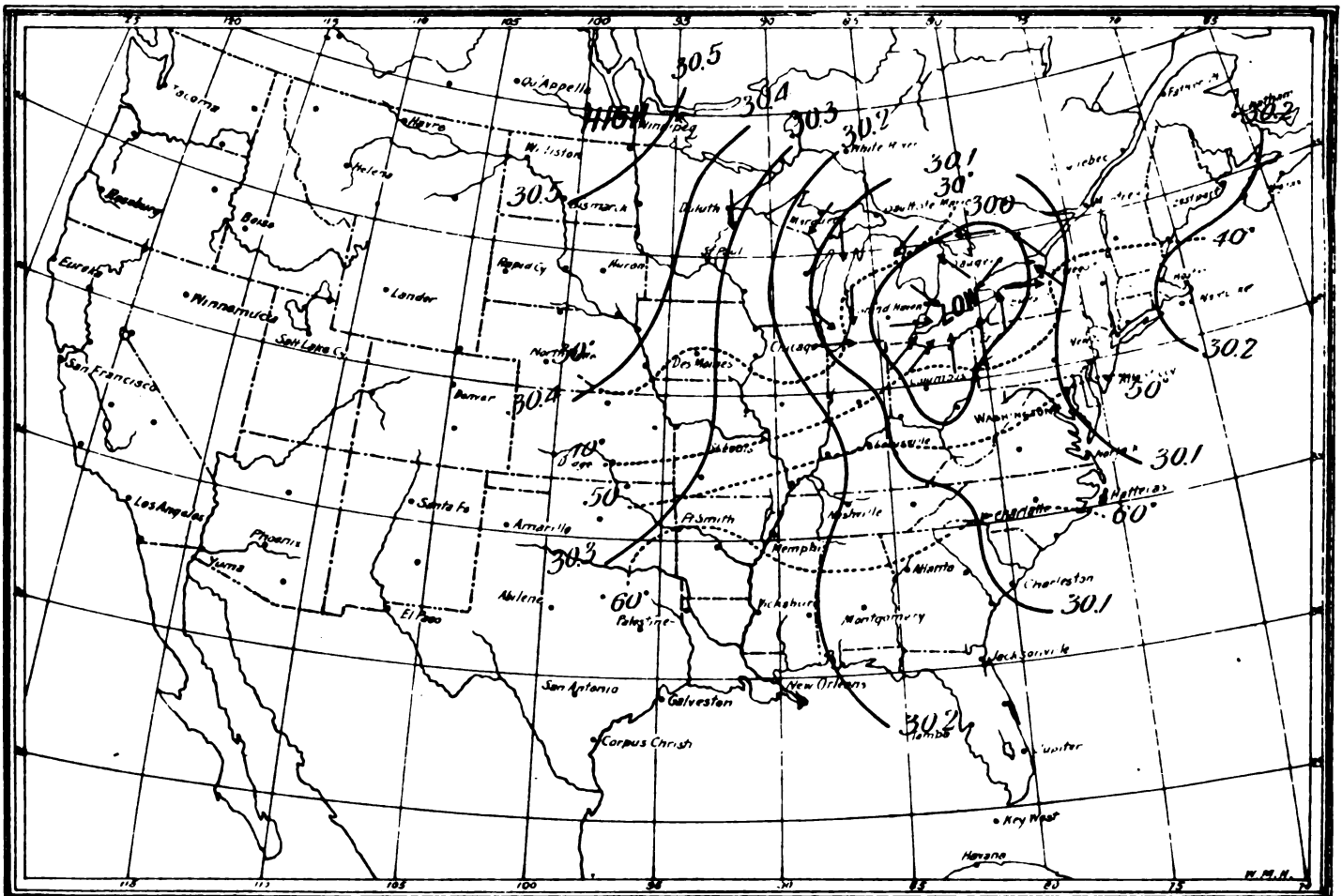


Chart DOLXIX.

November 18, 1879—3 p. m.

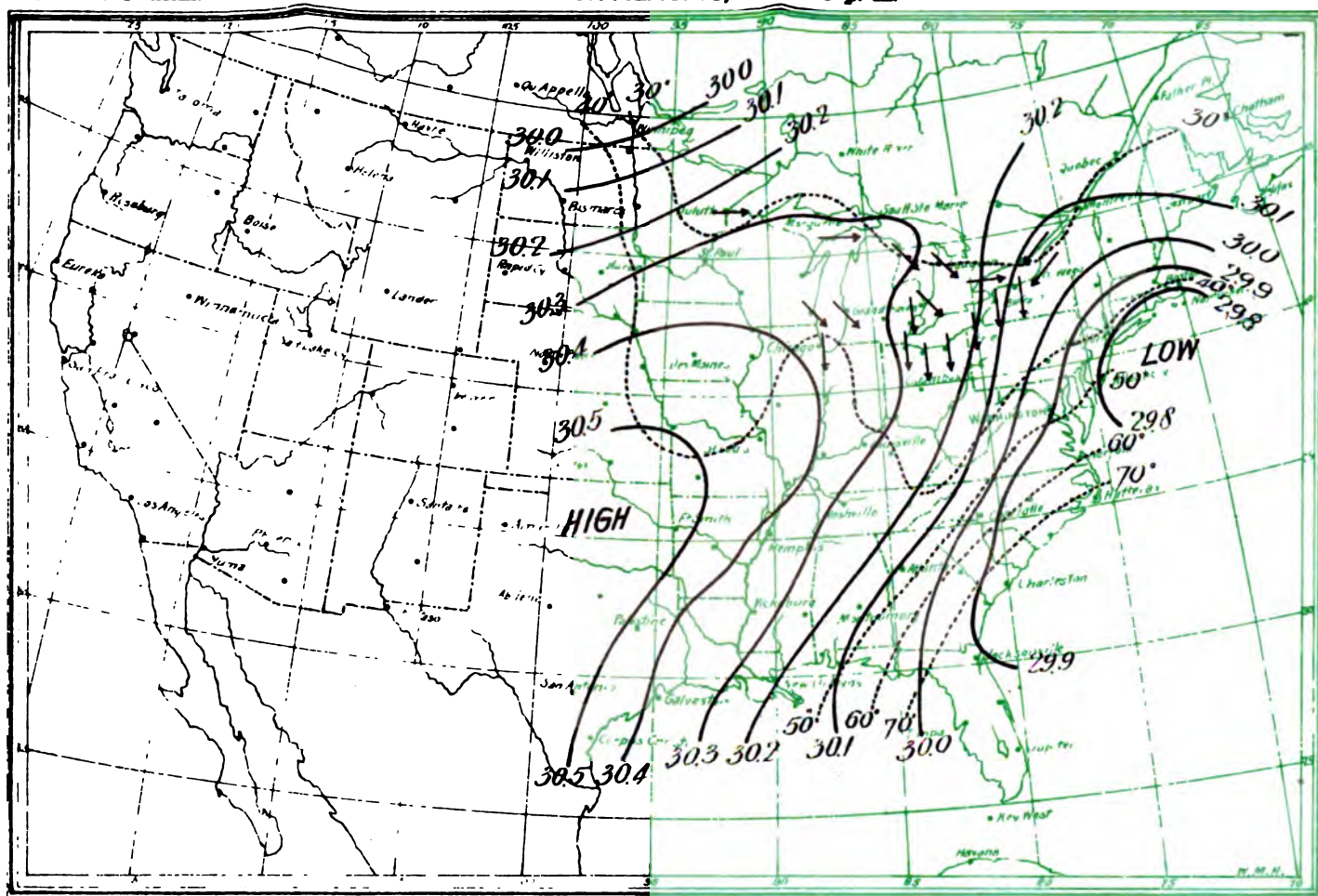


Chart DOLXX.

November 19, 1879—7 a. m.

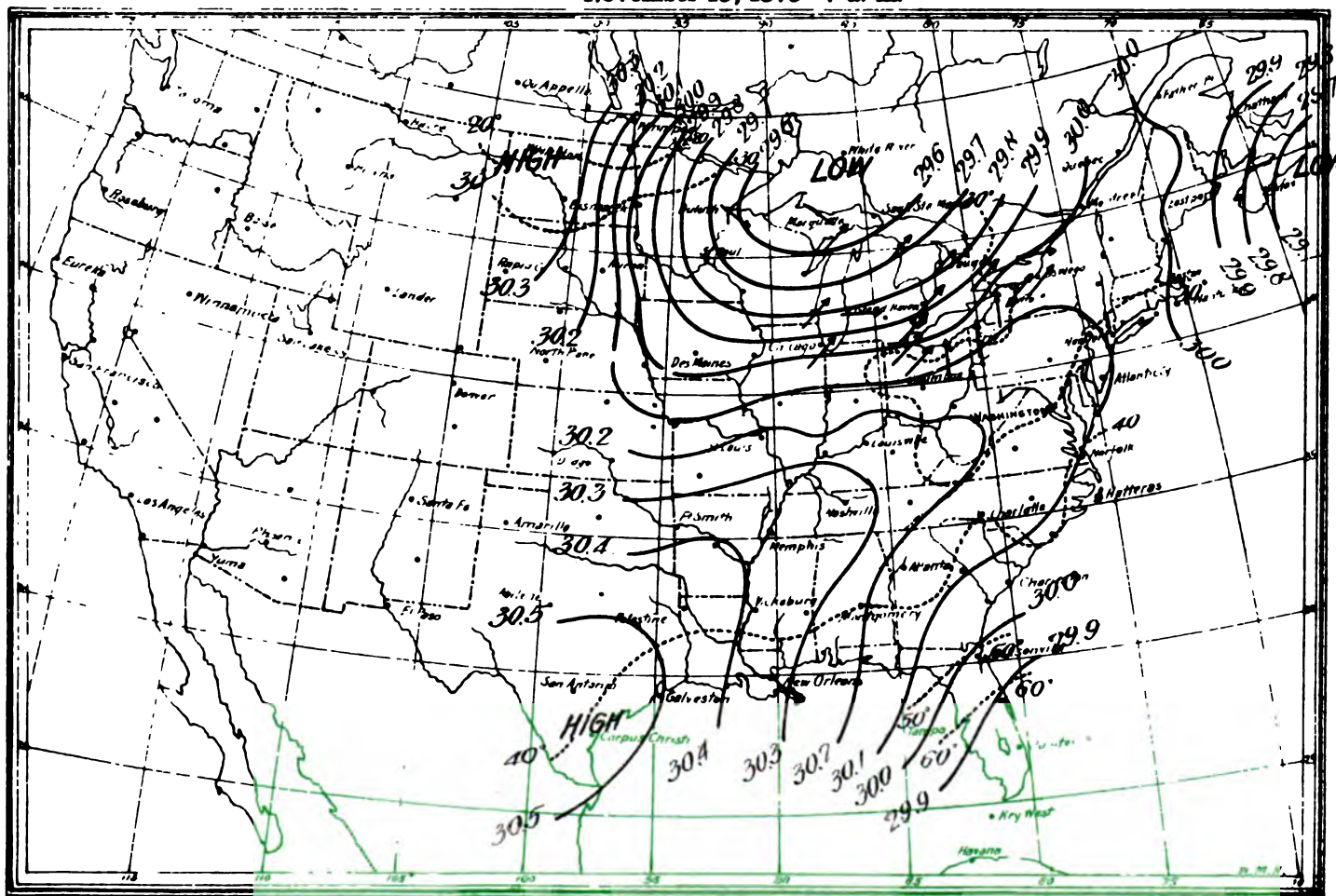


Chart DOLXXI.

November 19, 1879—8 p. m.

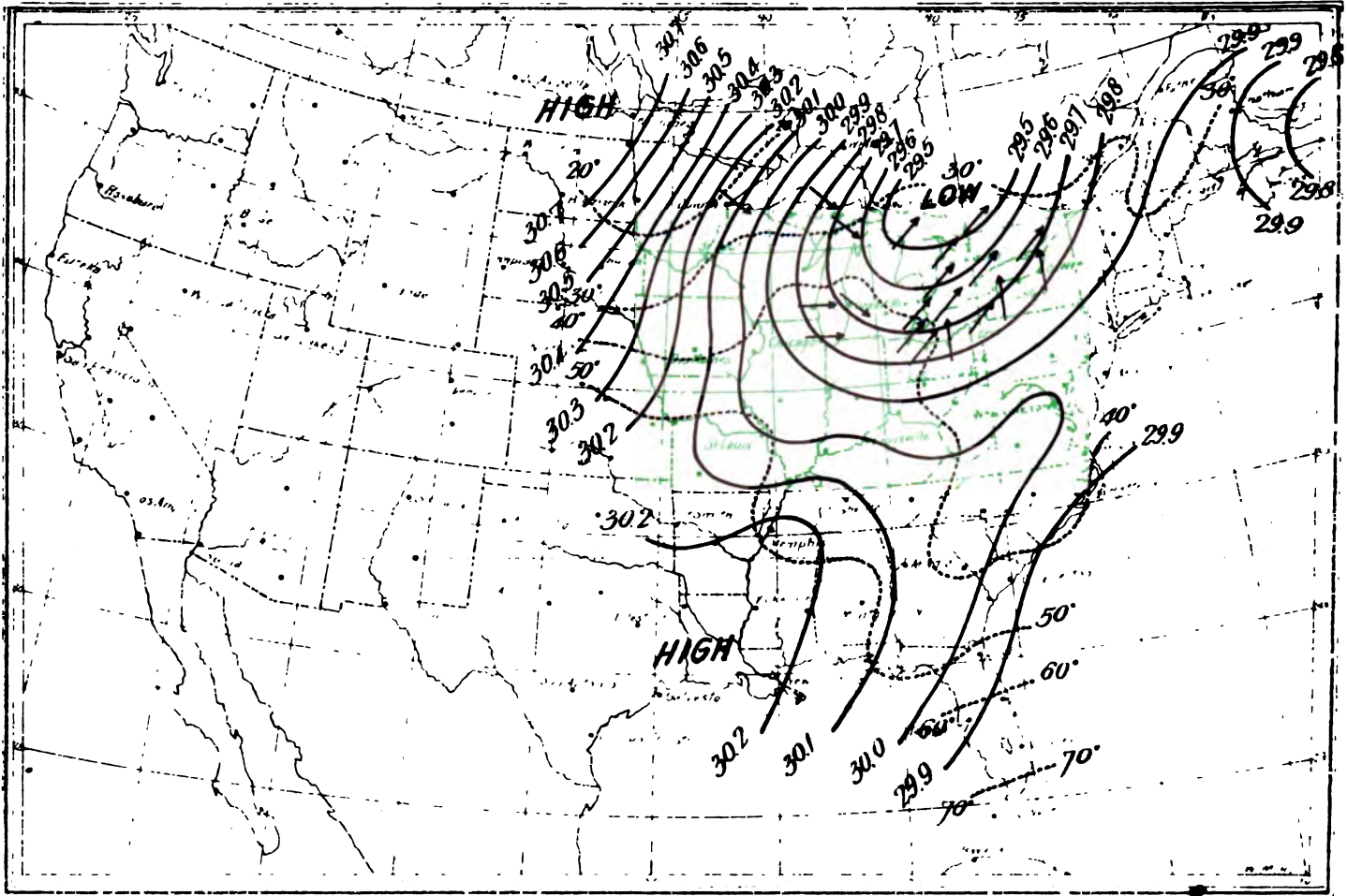


Chart DOLXXII.

November 20, 1879—7 a. m.

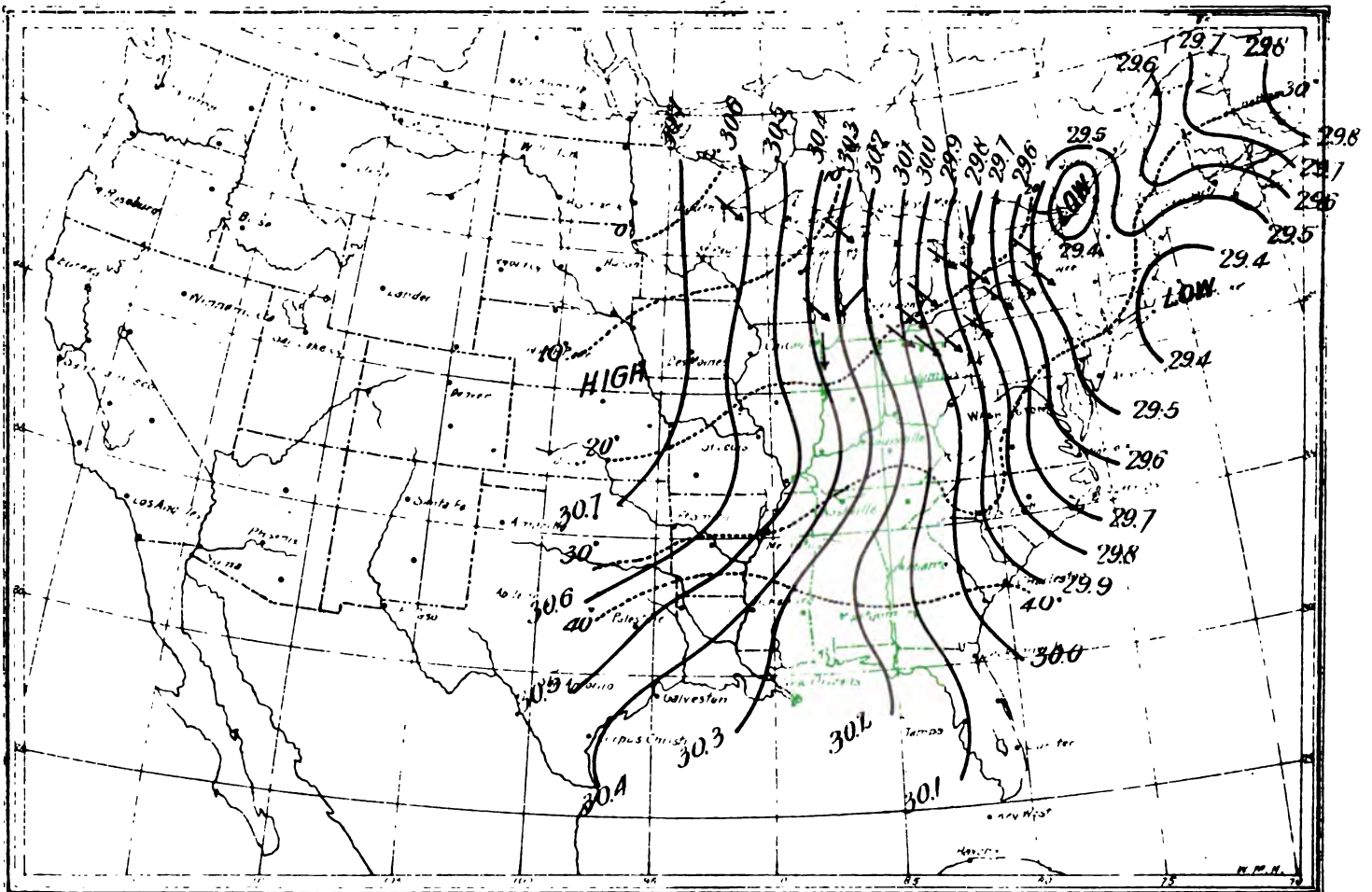


Chart DOLXXIII.

November 27, 1879—7 a. m.

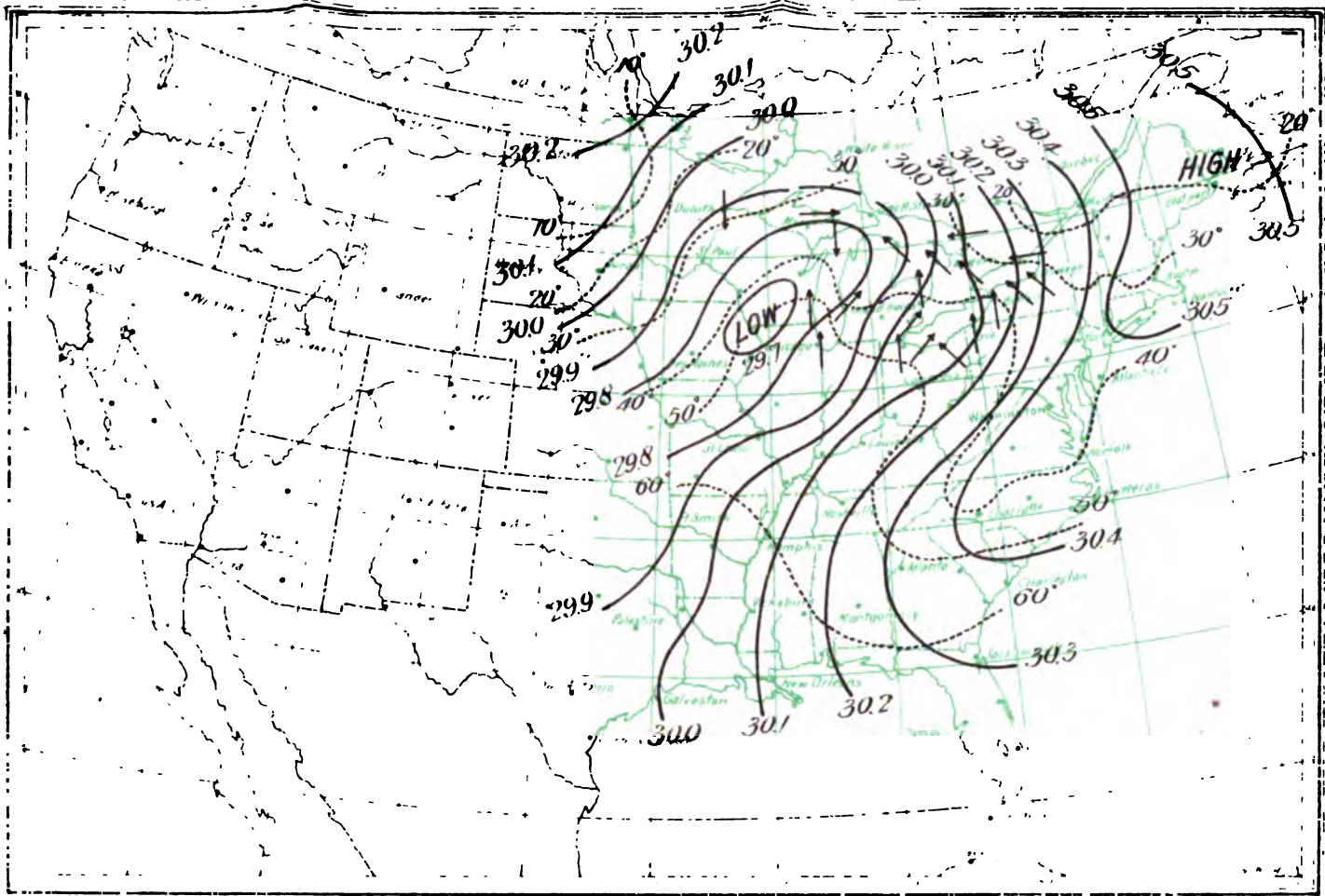


Chart DOLXXIV.

November 27, 1879—3 p. m.

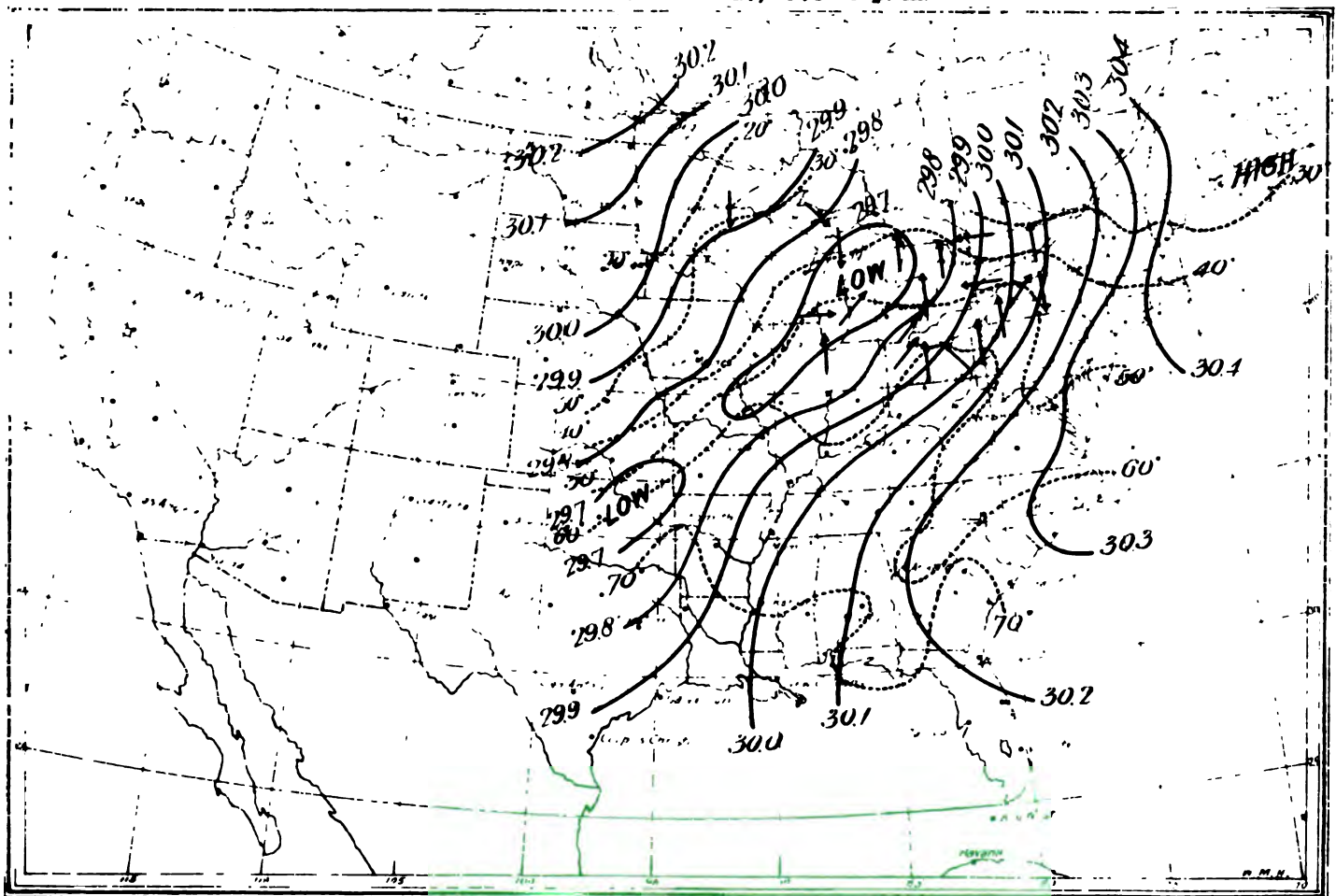


Chart DOLXXV.

November 28, 1879—7 a. m.

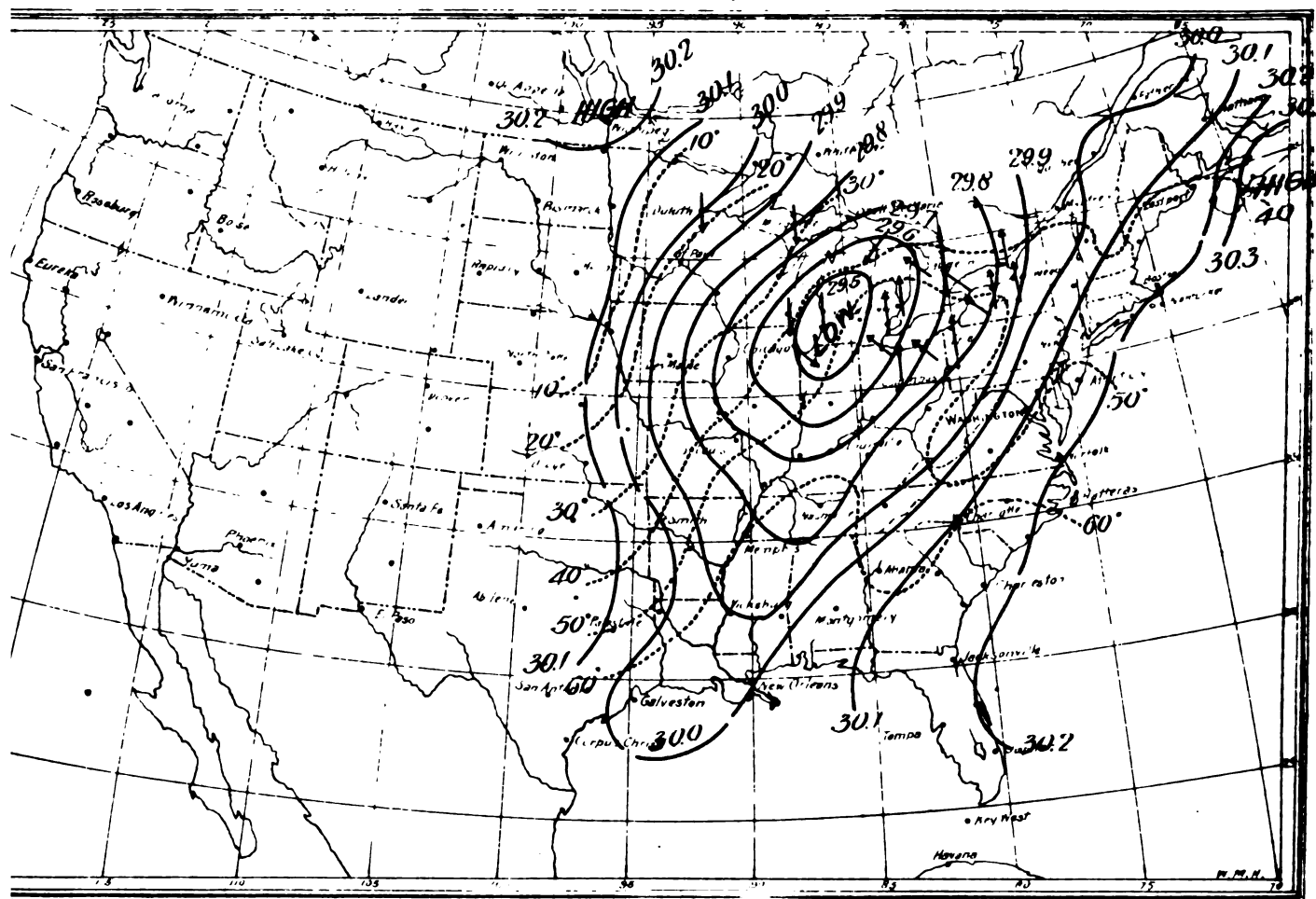


Chart DOLXXVI.

November 28, 1879—3 p. m.

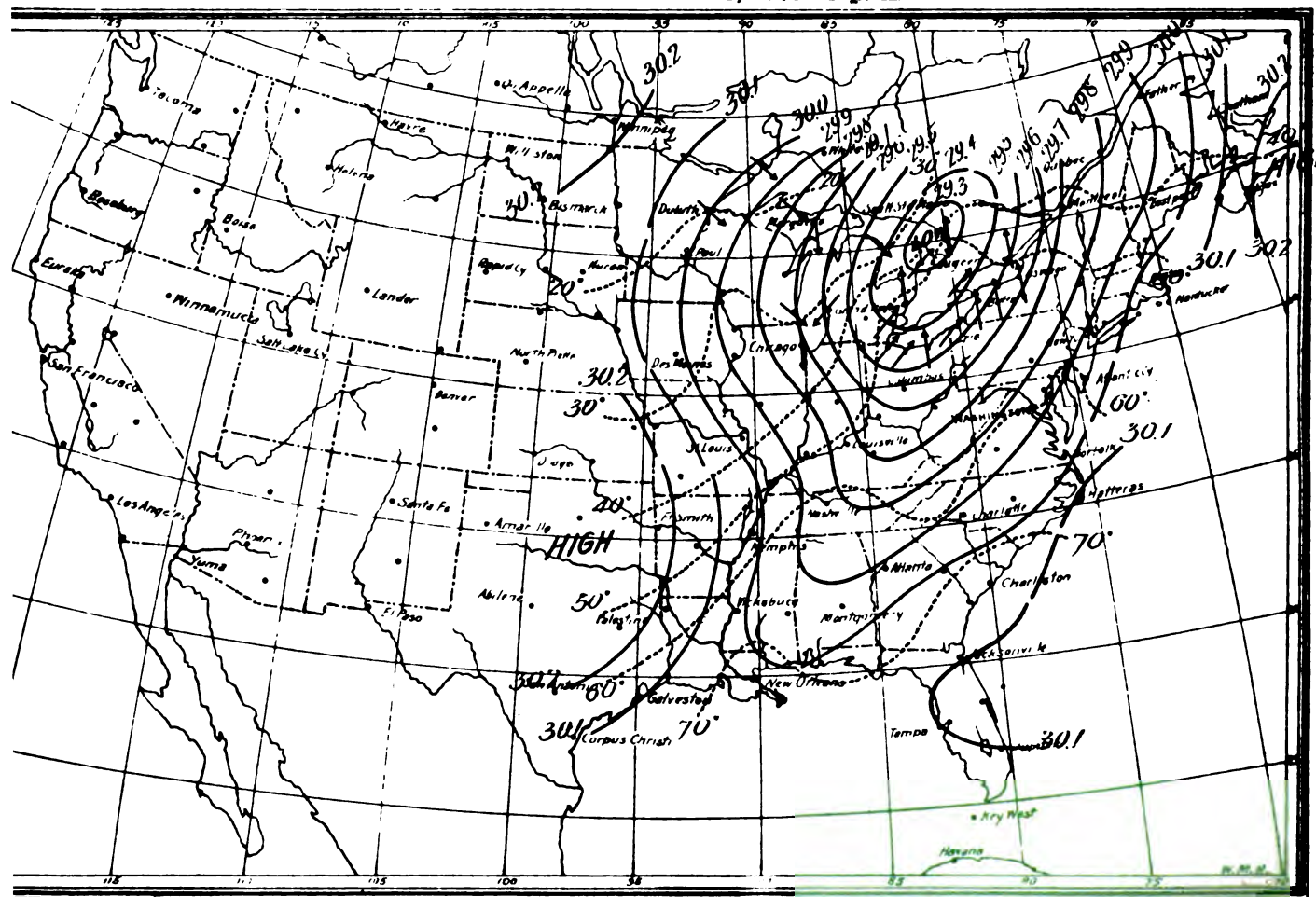


Chart DOLXXVII.

November 5, 1880—8 p. m.

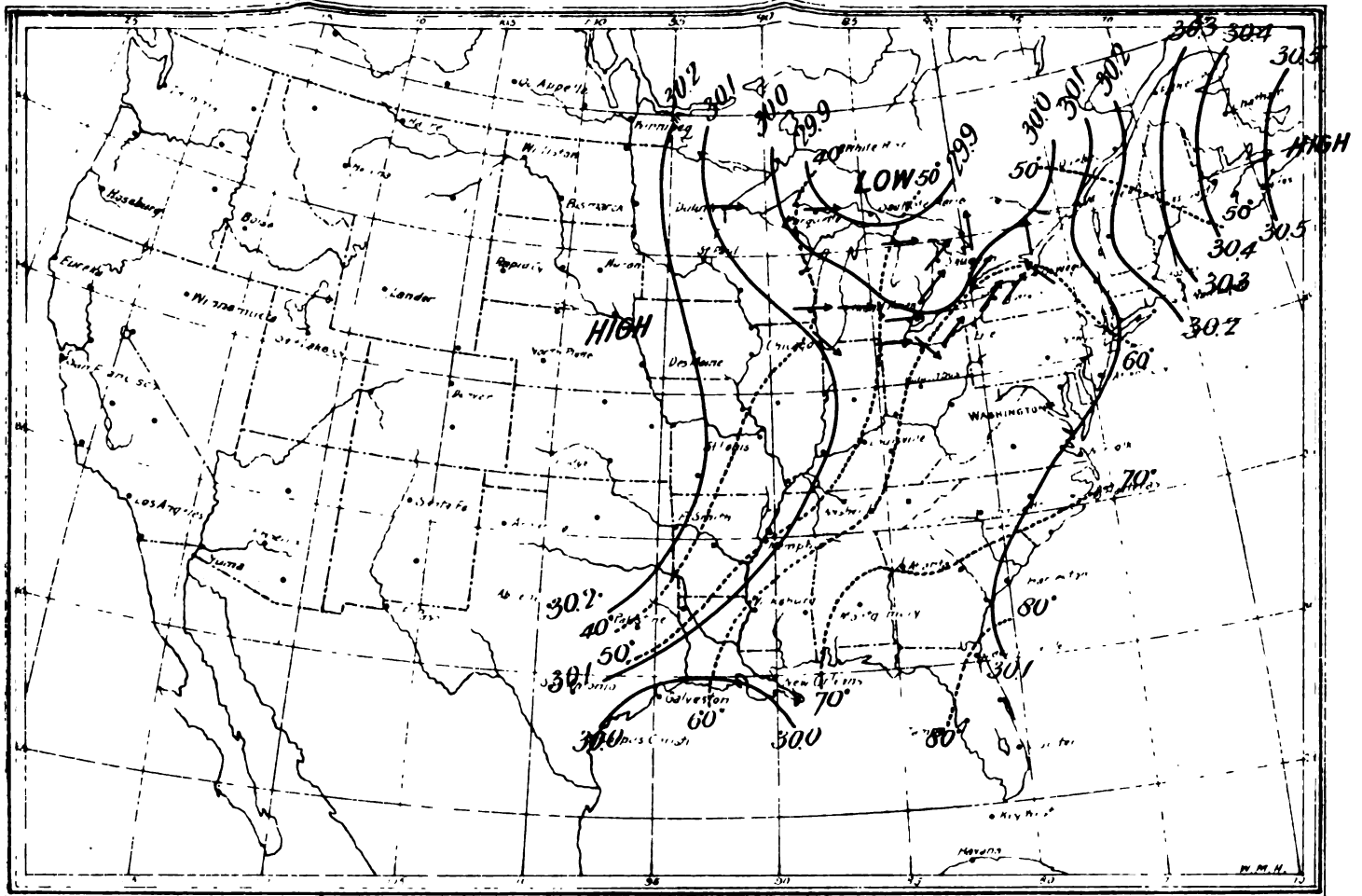


Chart DOLXXVIII.

November 6, 1880—7 a. m.

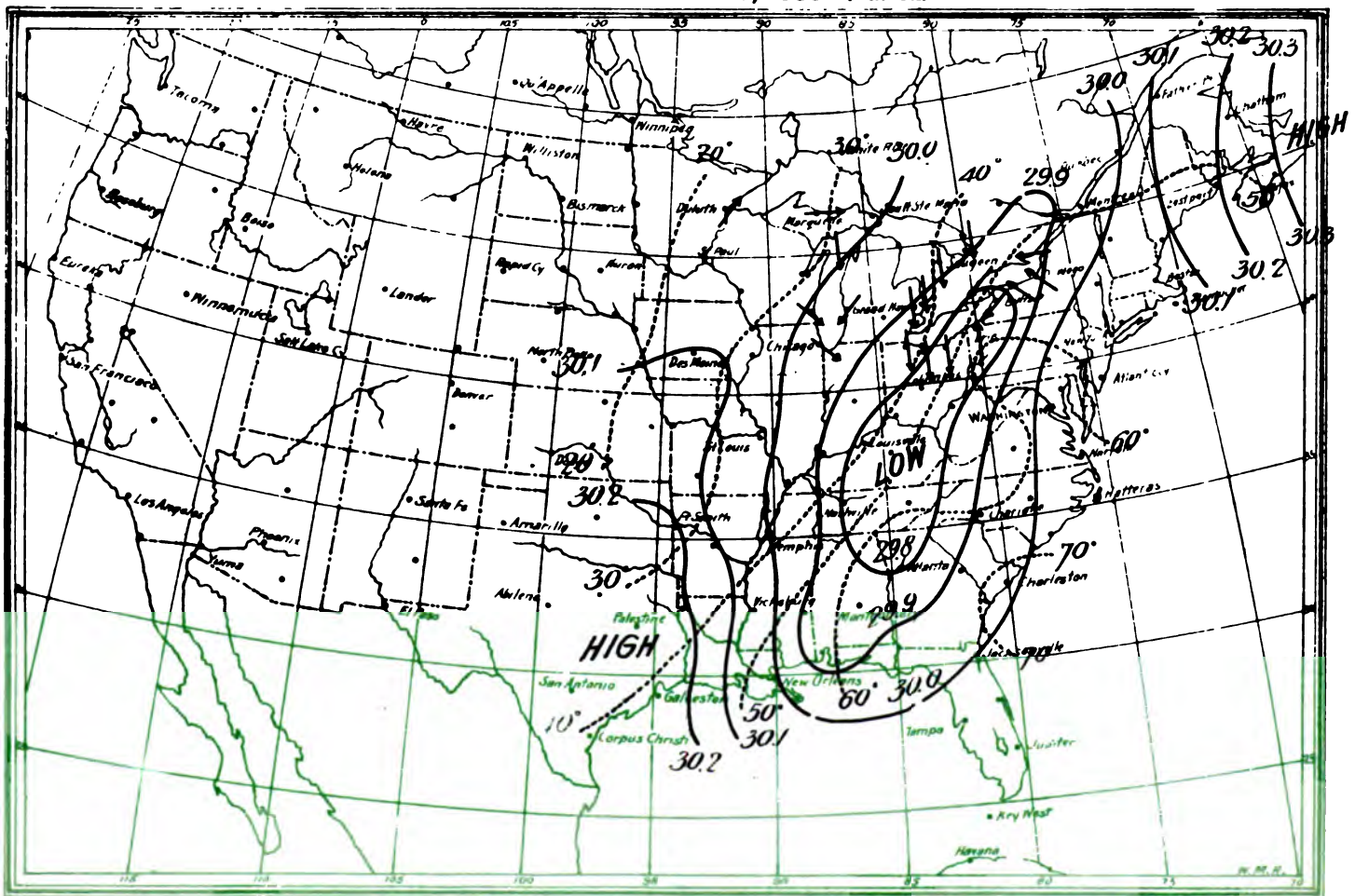


Chart DOLXXIX.

November 6, 1880—8 p. m.

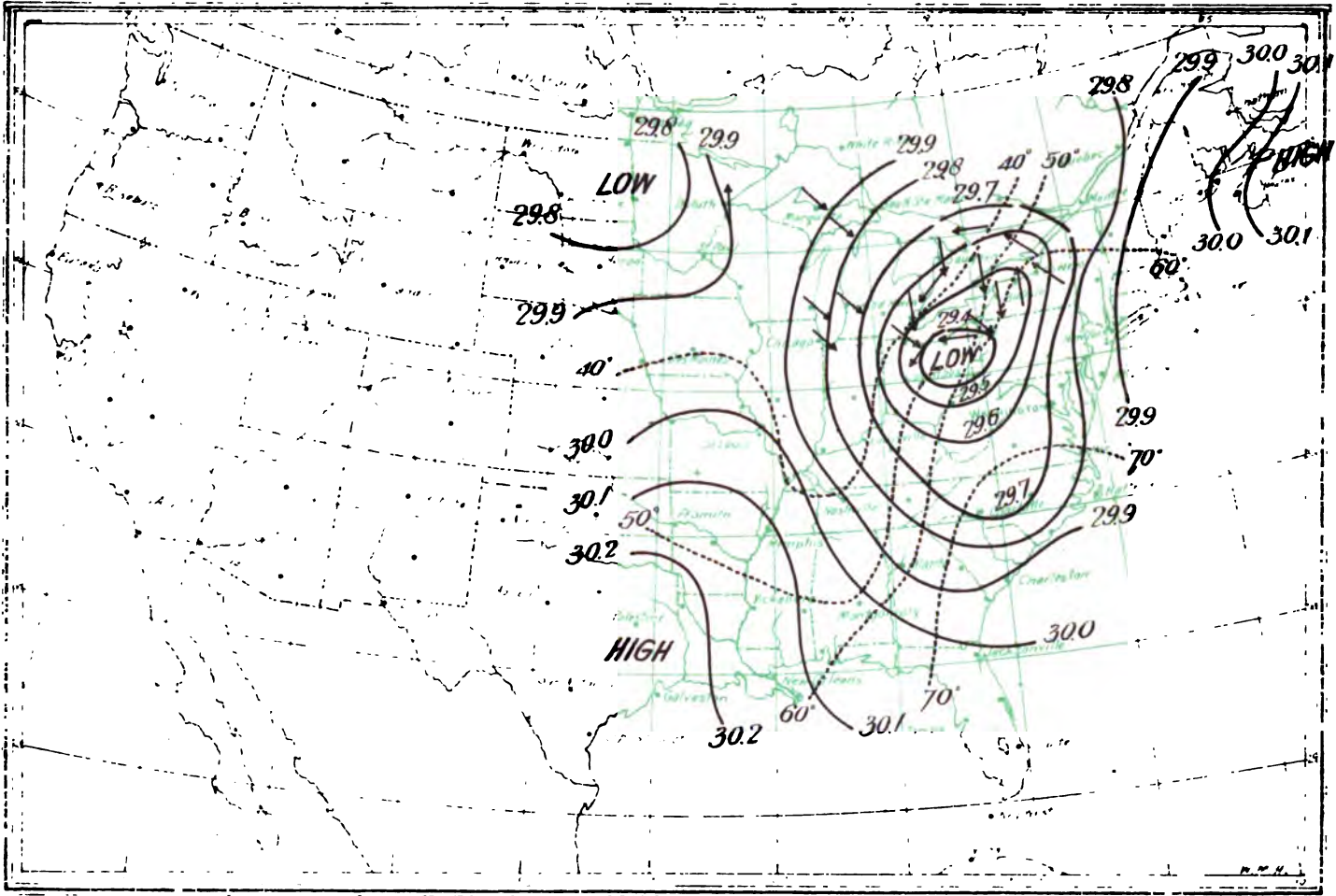


Chart DOLXXX.

November 7, 1880—7 a. m.

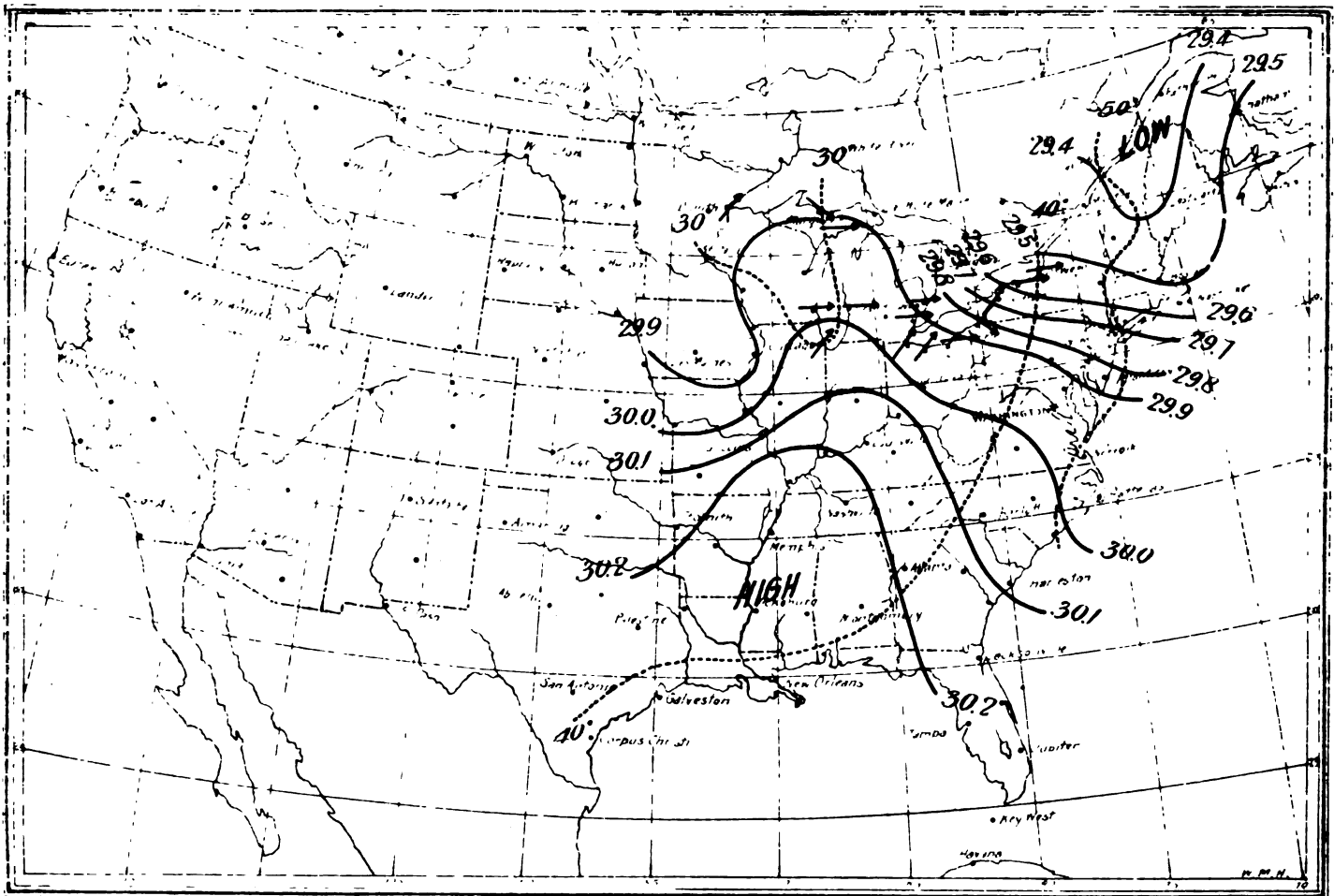


Chart DOLXXXI.

November 19, 1880—7 a. m.

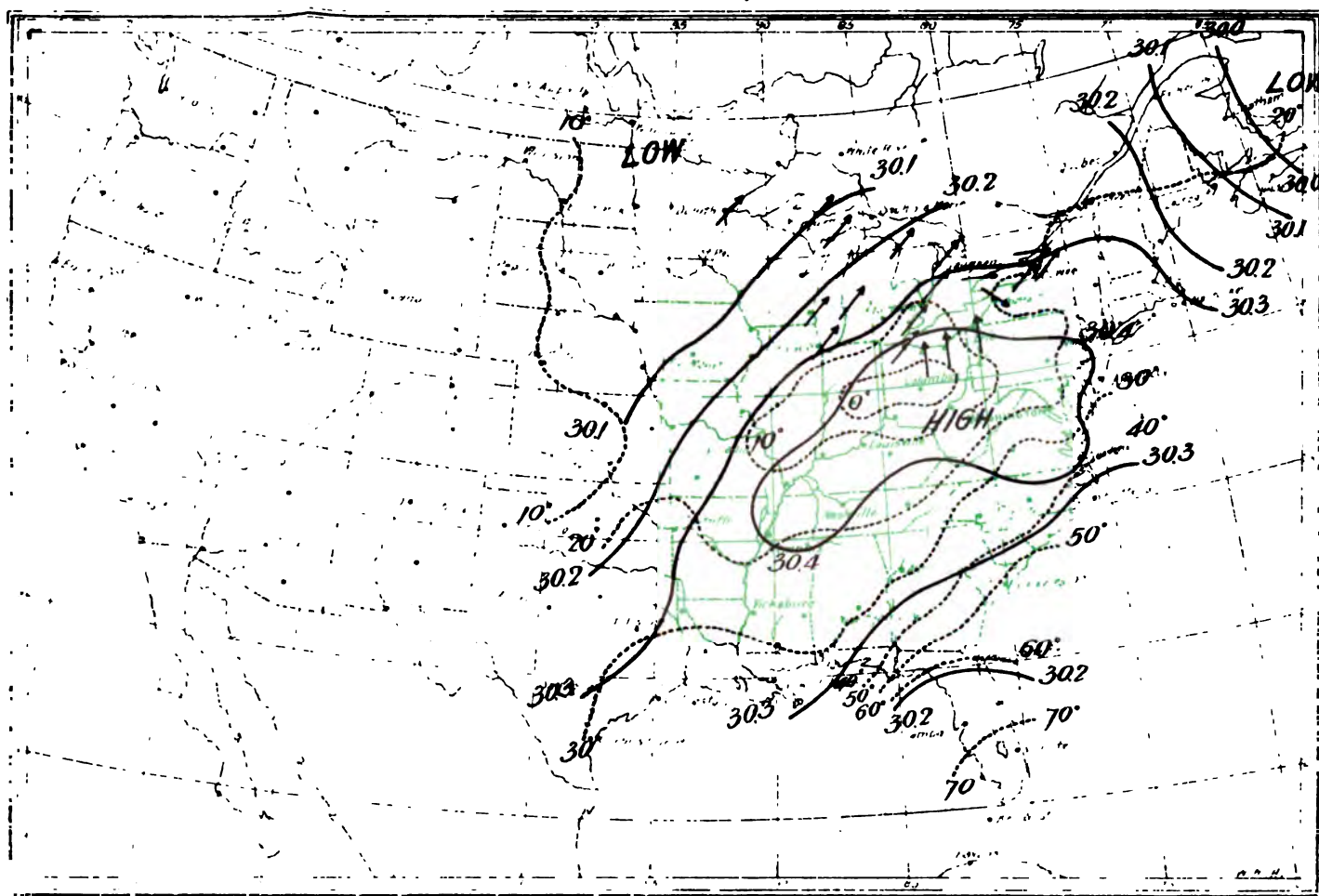


Chart DOLXXXII.

November 19, 1880—8 p. m.

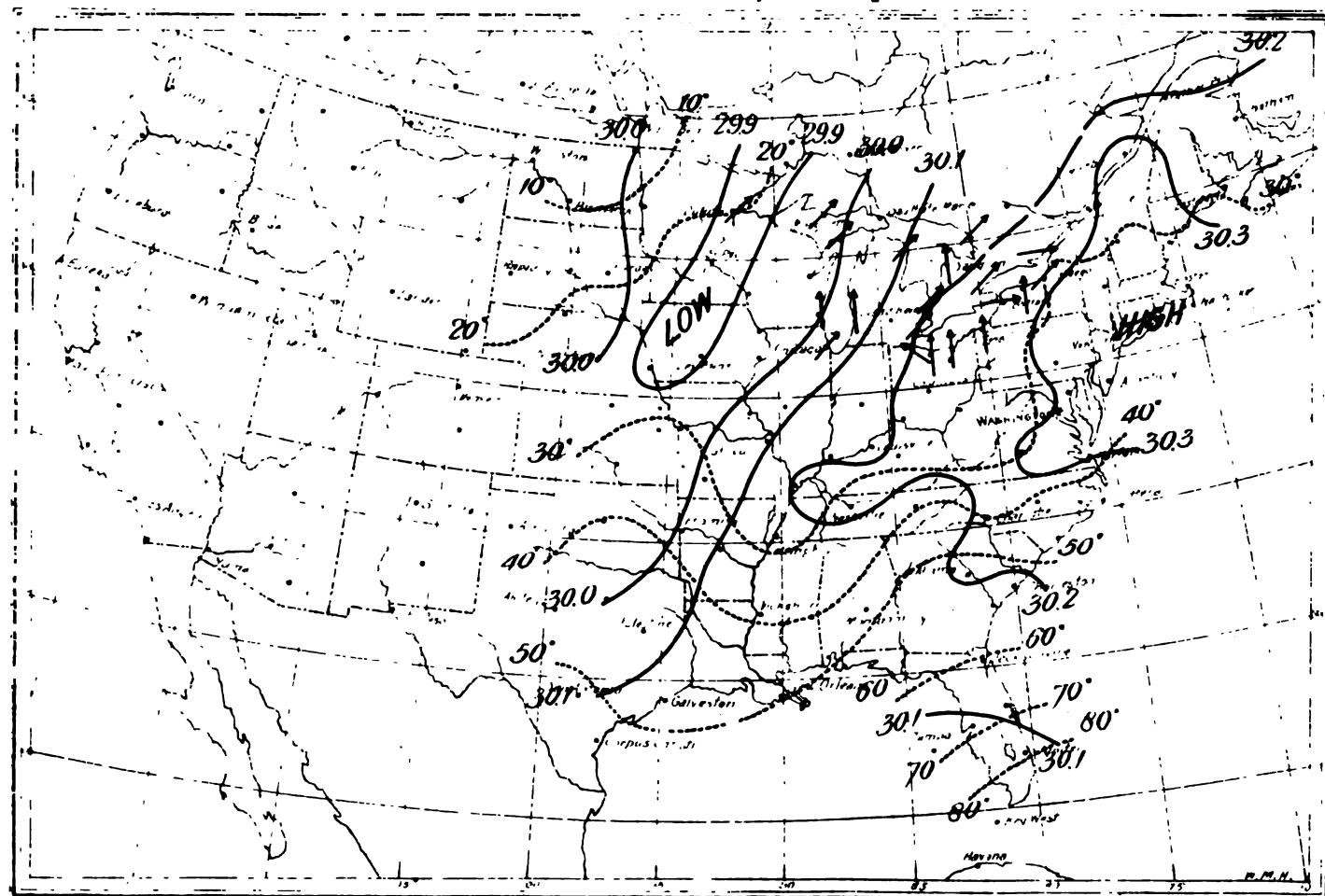


Chart DOLXXXIII.

November 20, 1880—7 a. m.

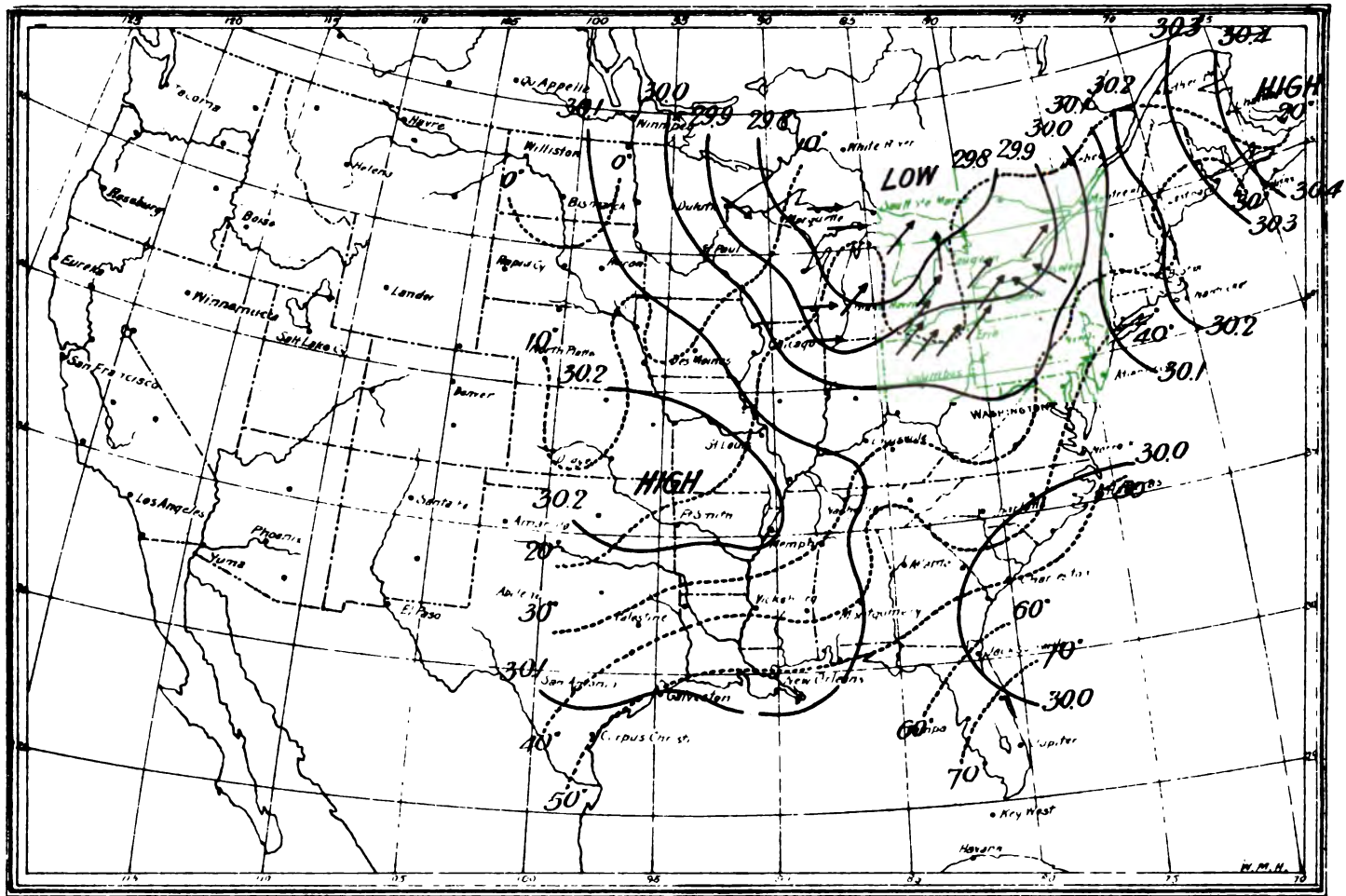


Chart DOLXXXIV.

November 20, 1880—3 p. m.

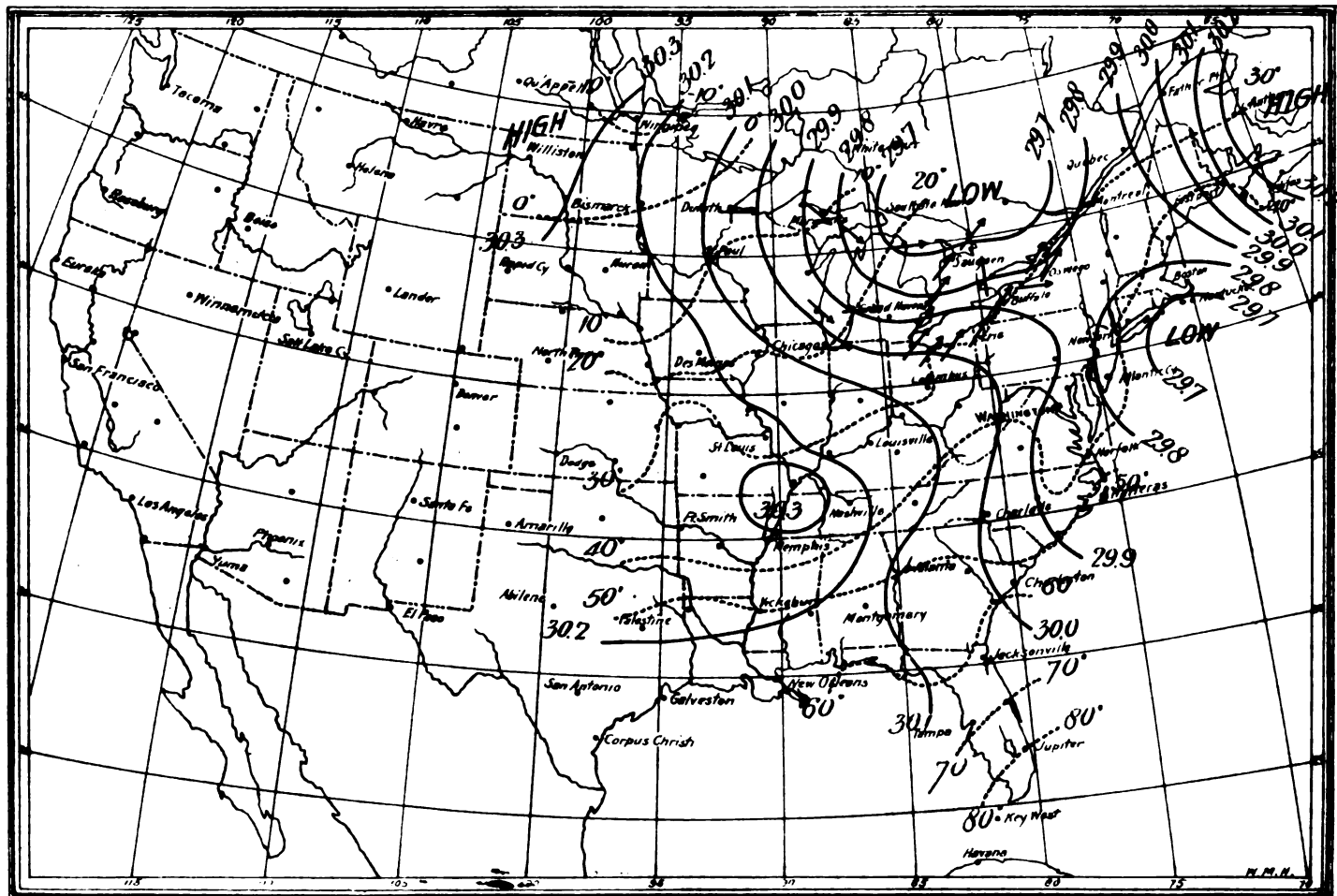


Chart DOLXXXV.

November 11, 1881—7 a. m.

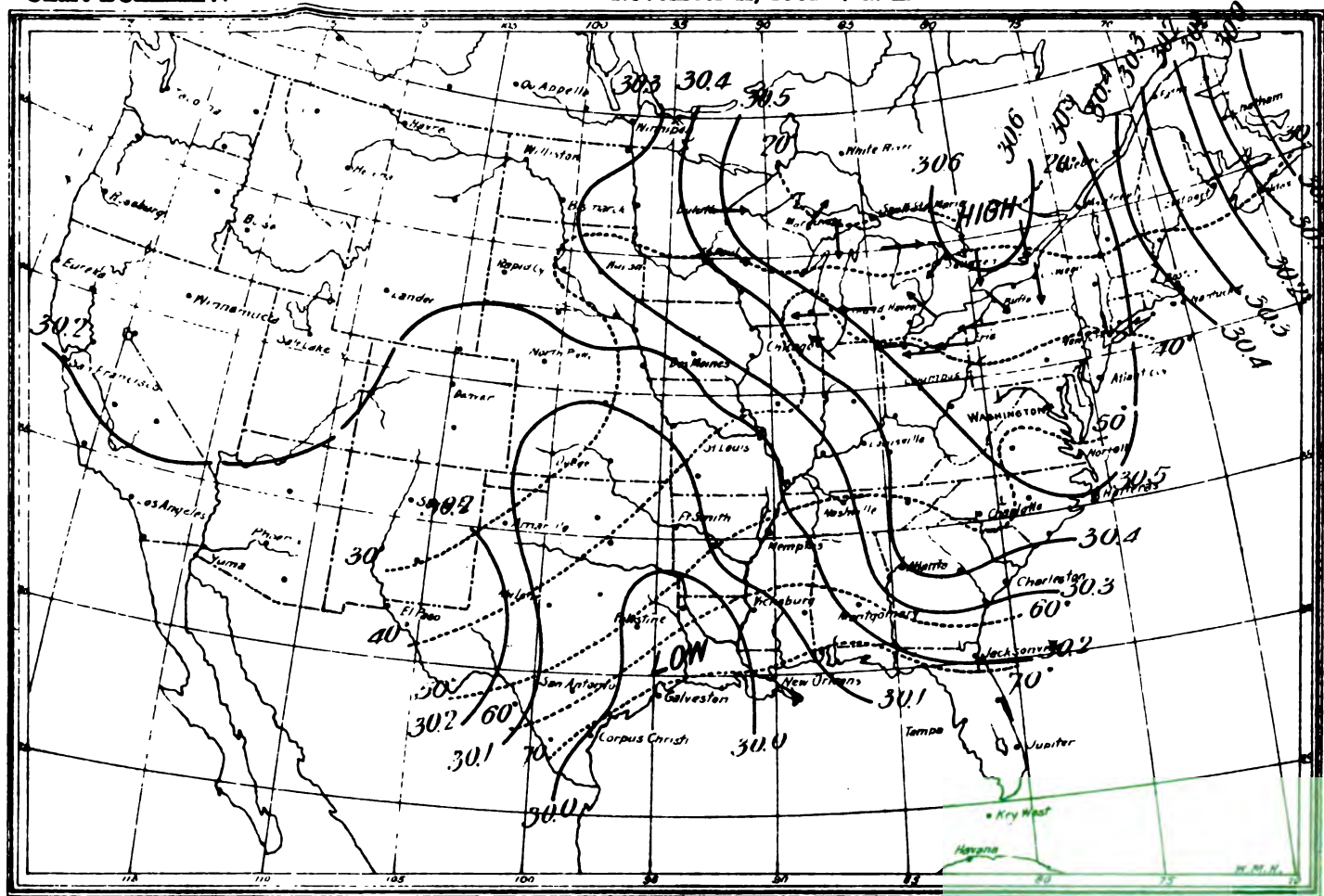


Chart DOLXXXVI.

November 11, 1881—3 p. m.

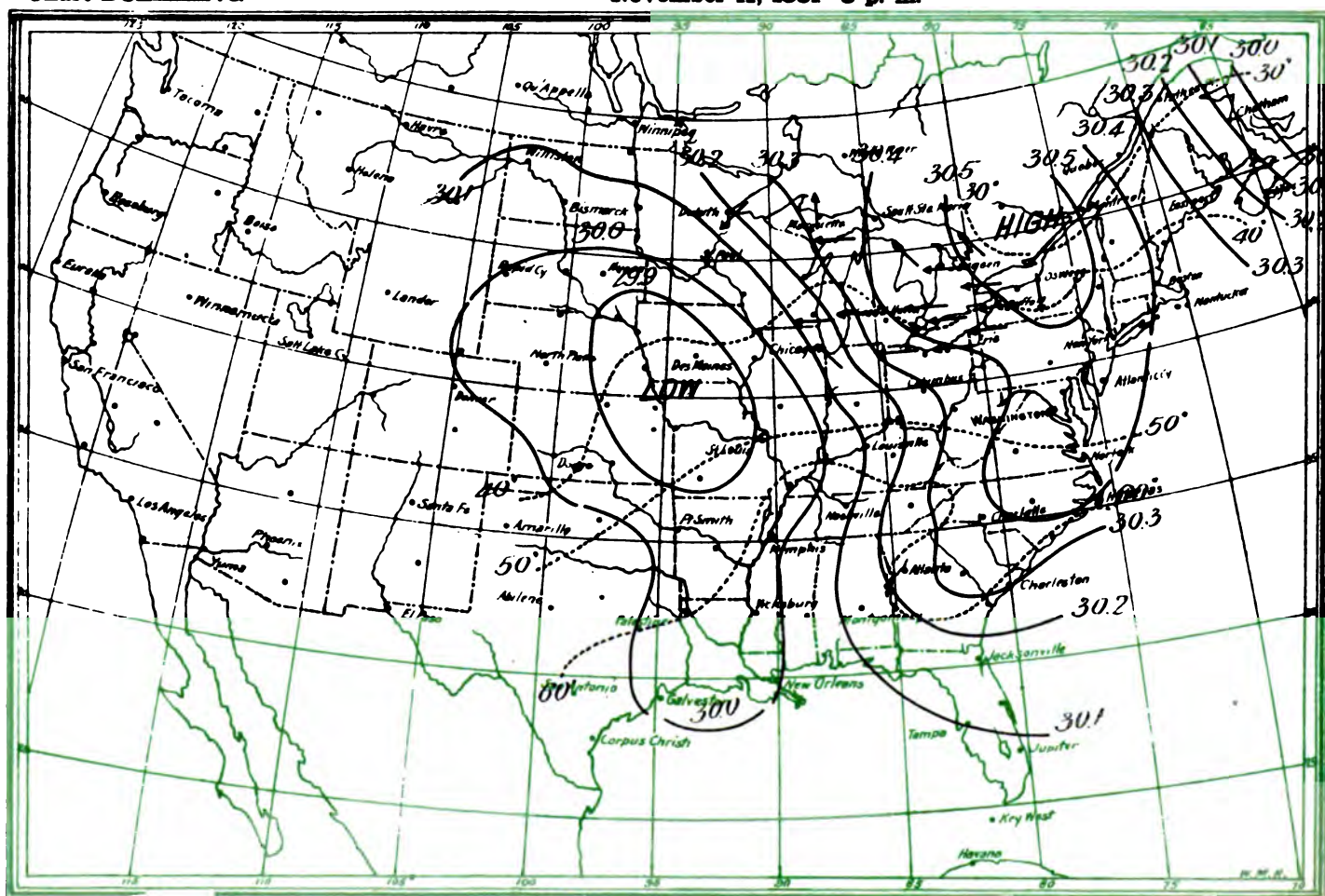


Chart DOLXXXVII.

November 12, 1881—7 a. m.

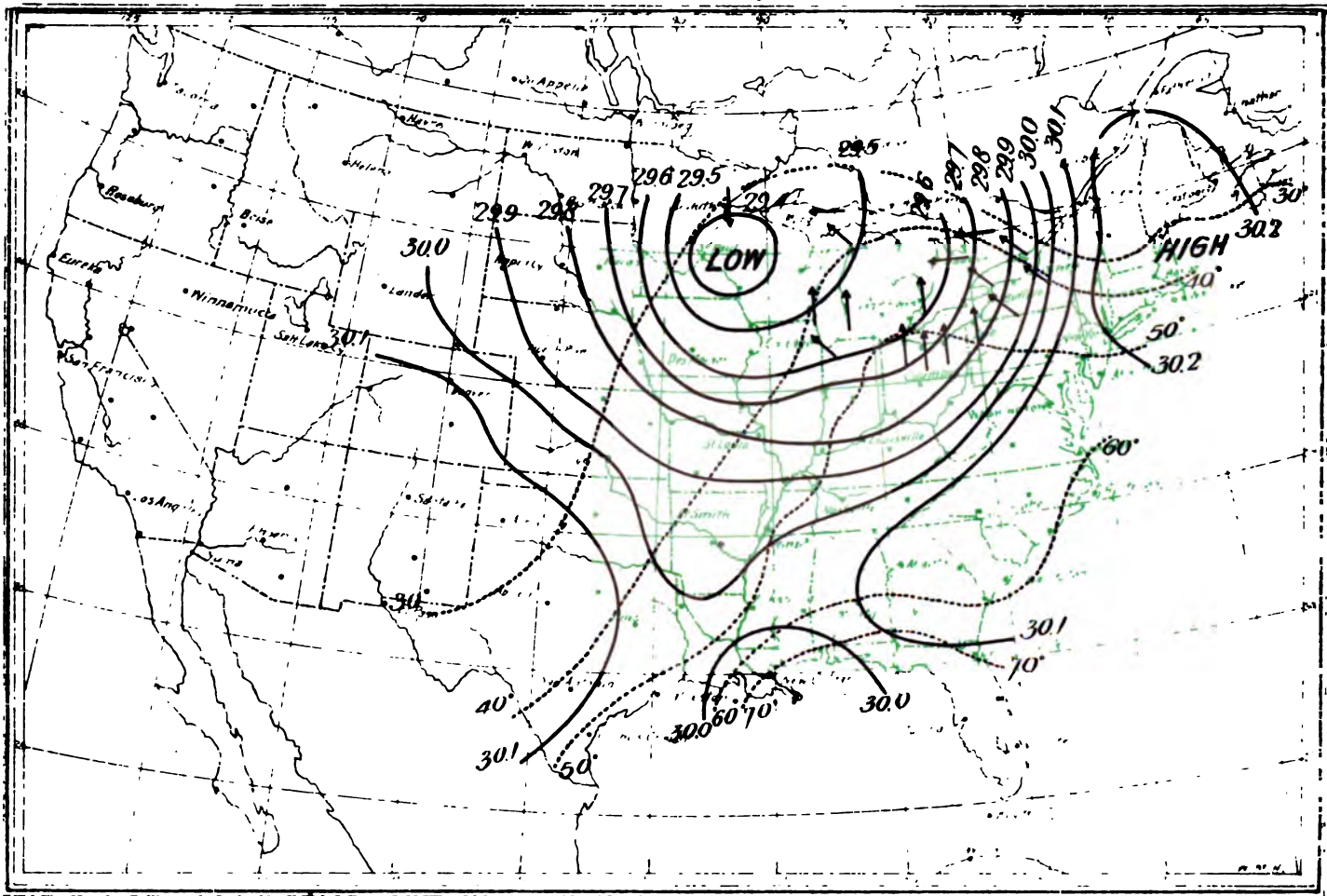


Chart DOLXXXVIII.

November 12, 1881—3 p. m.

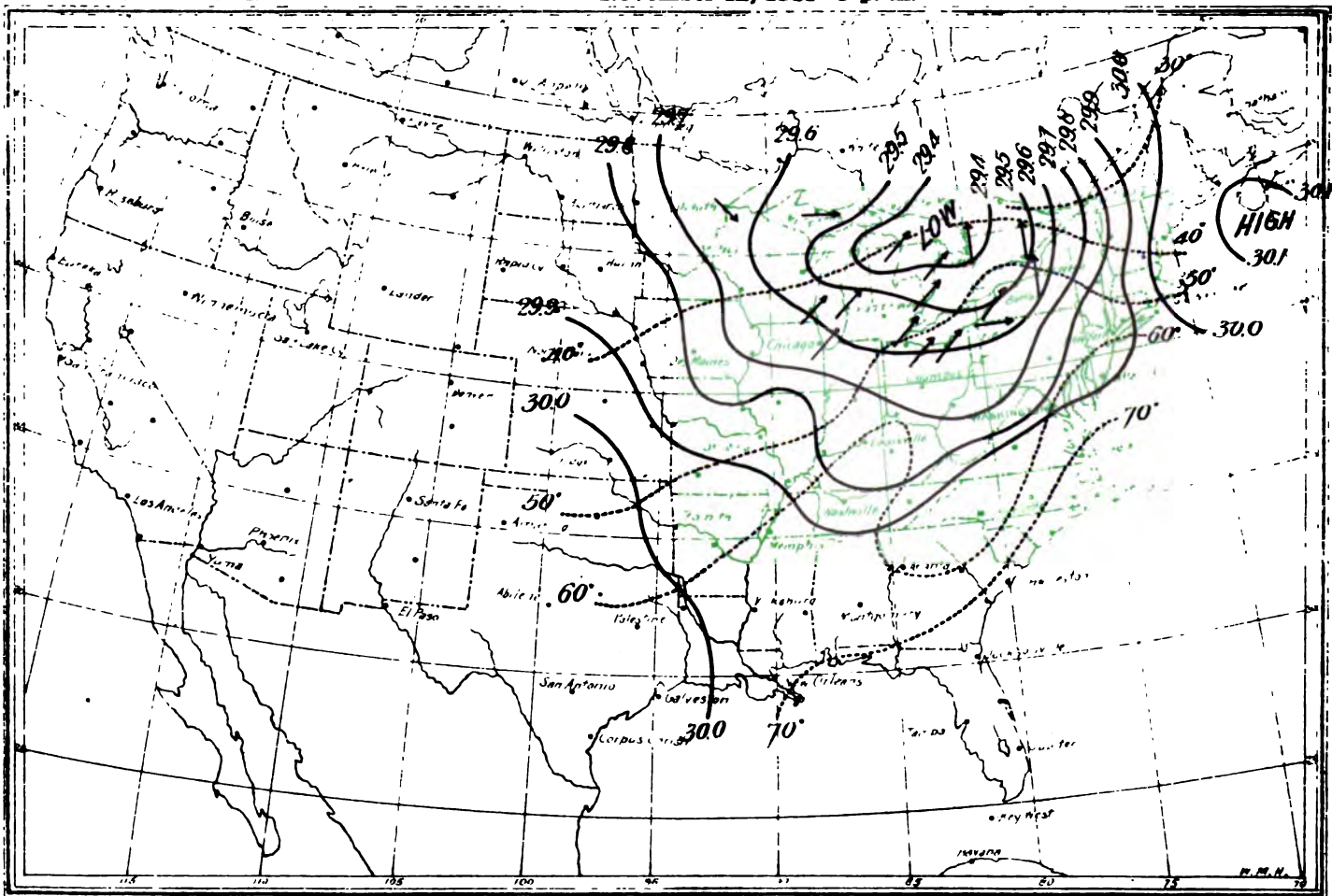


Chart DOLXXXIX.

November 18, 1881—7 a. m.

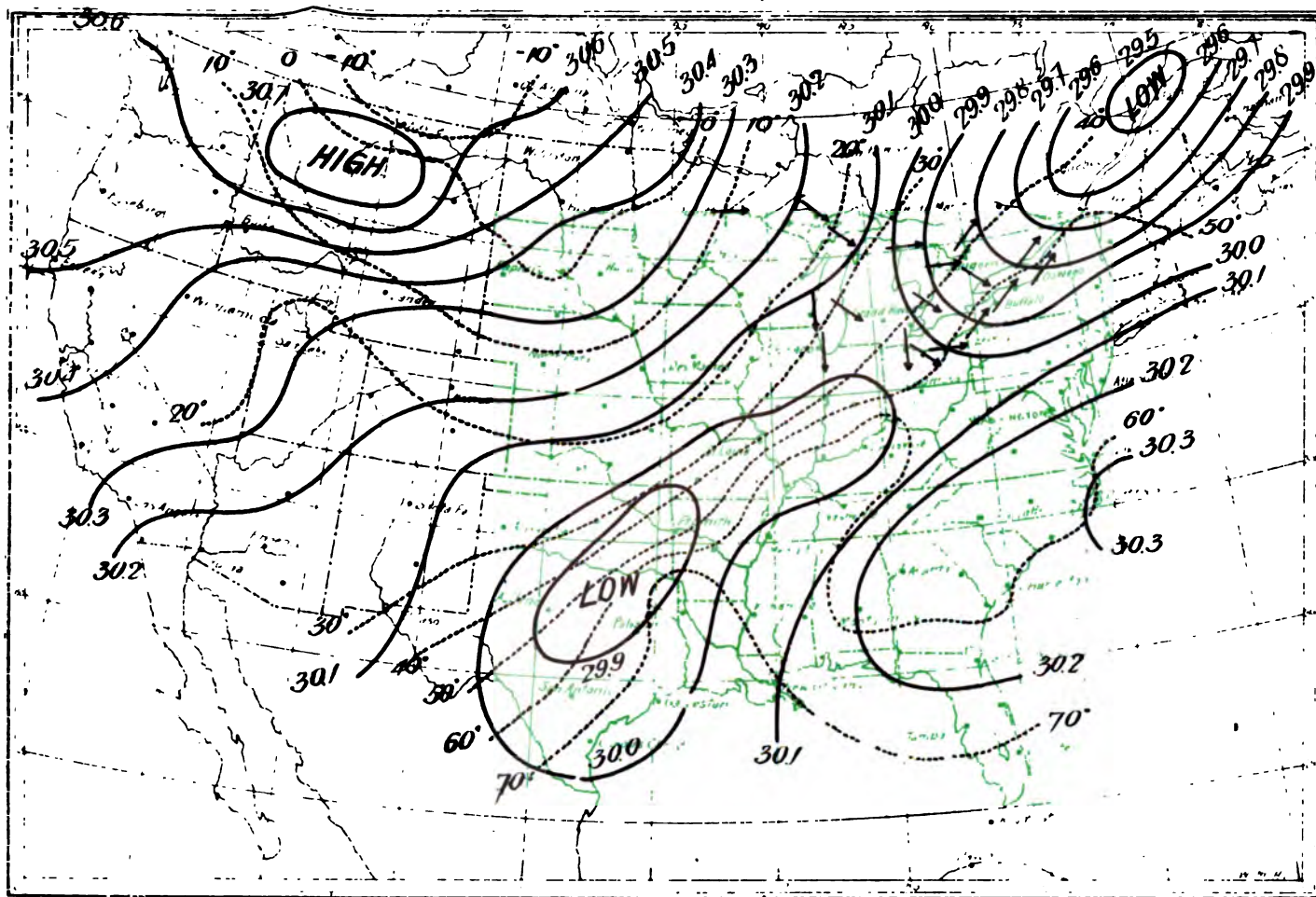


Chart DOXO.

November 18, 1881—3 p. m.

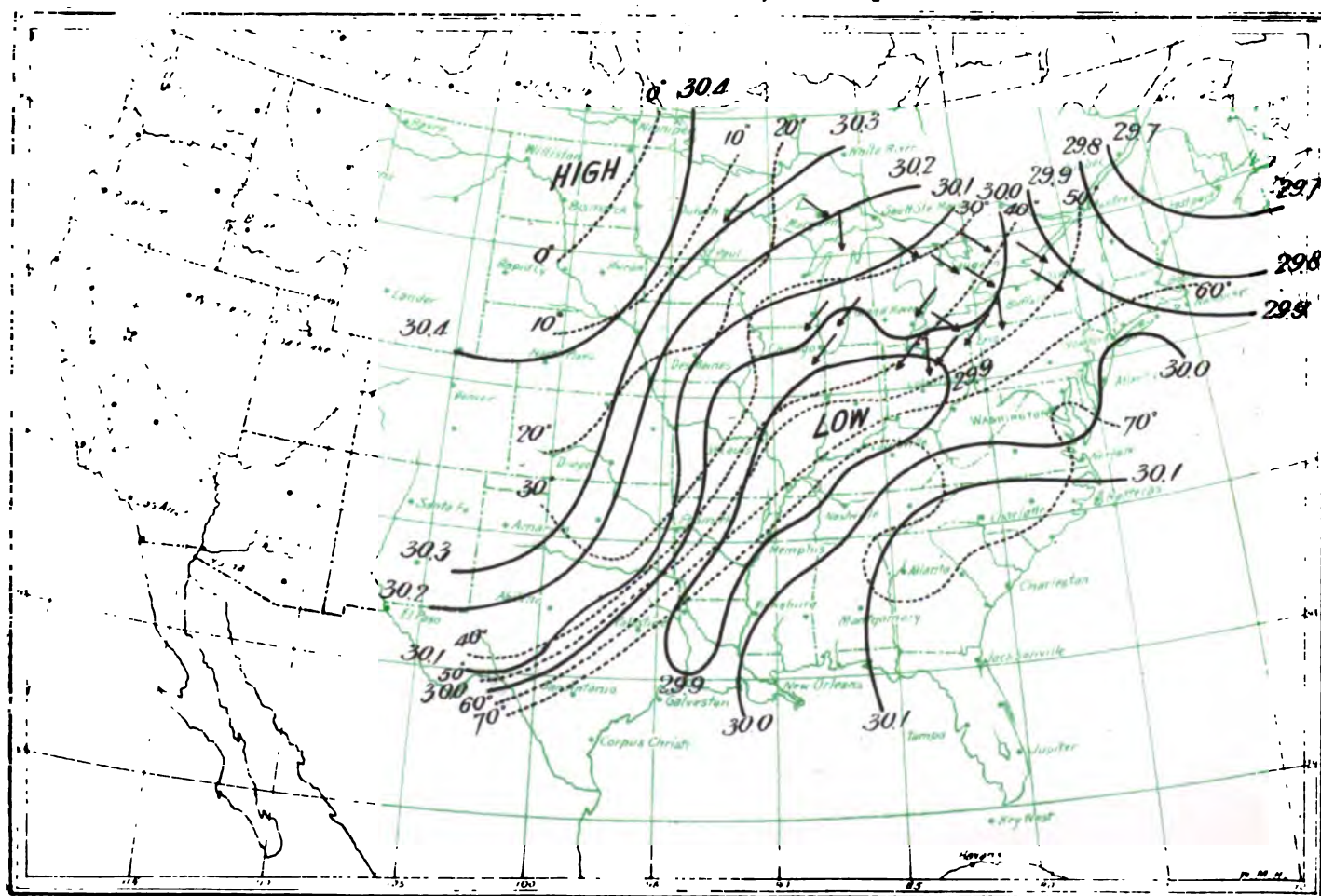


Chart DOXOL

November 19, 1881—7 a. m.

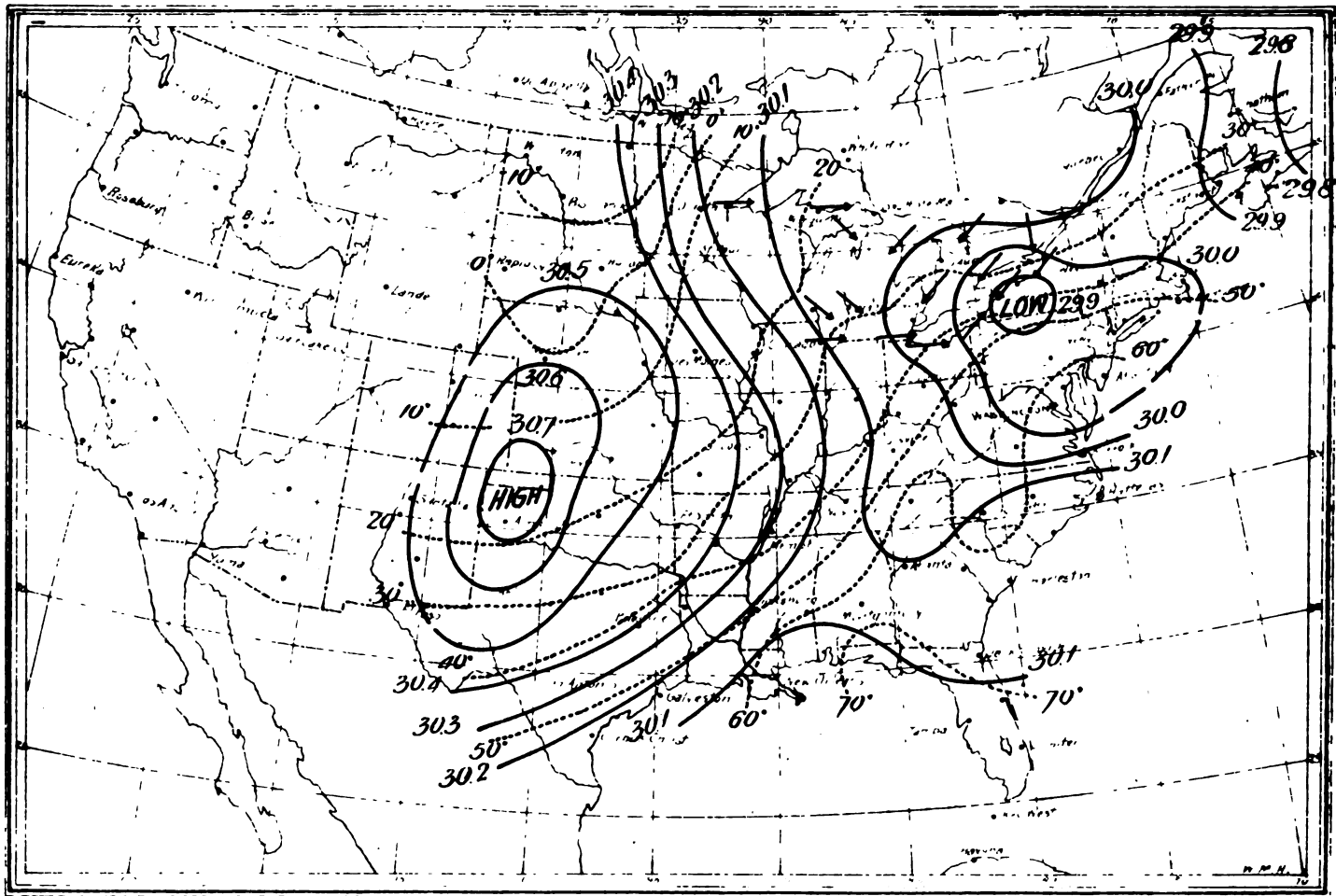


Chart DOXOL

November 19, 1881—3 p. m.

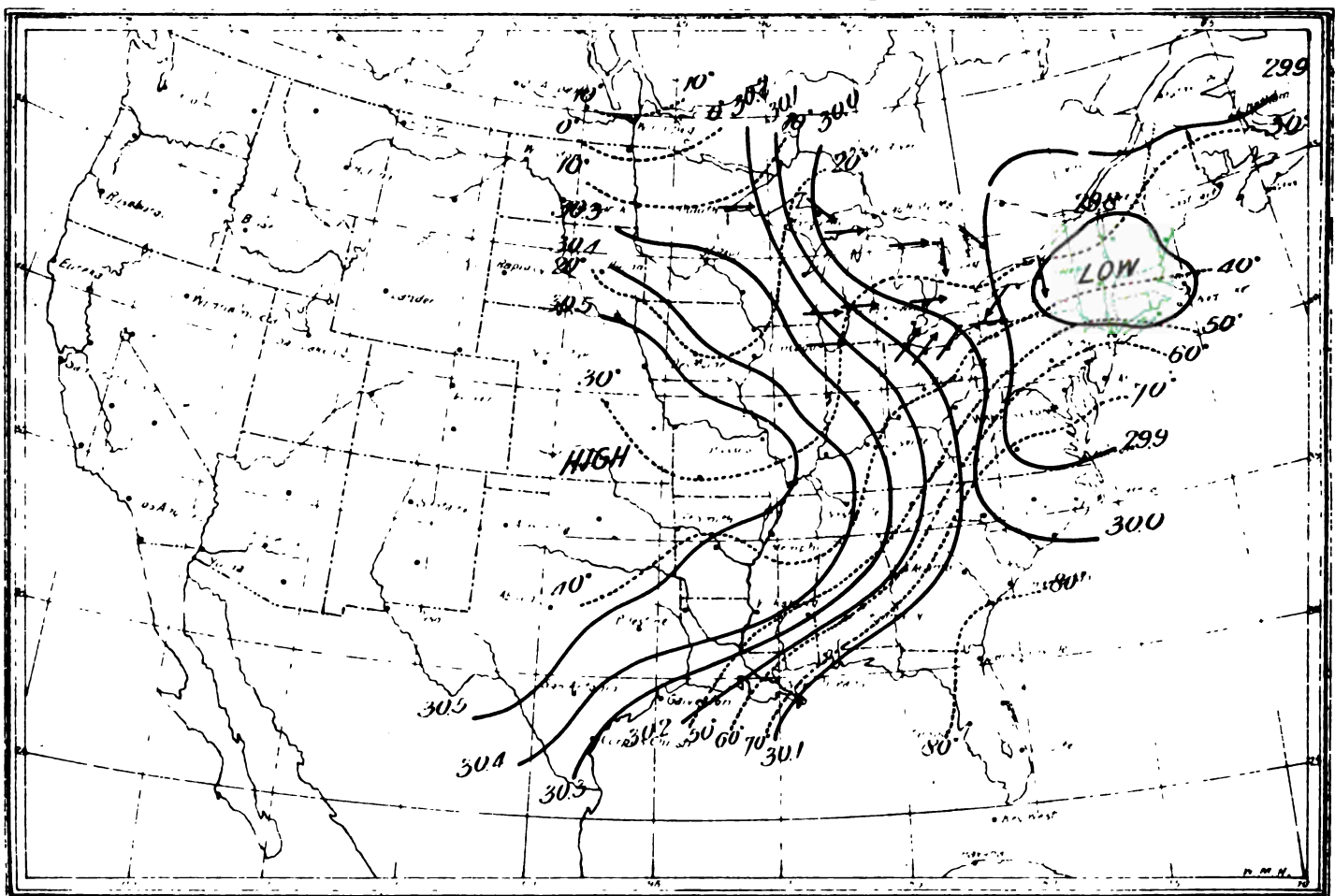


Chart DXXIII.

November 27, 1882—8 p. m.

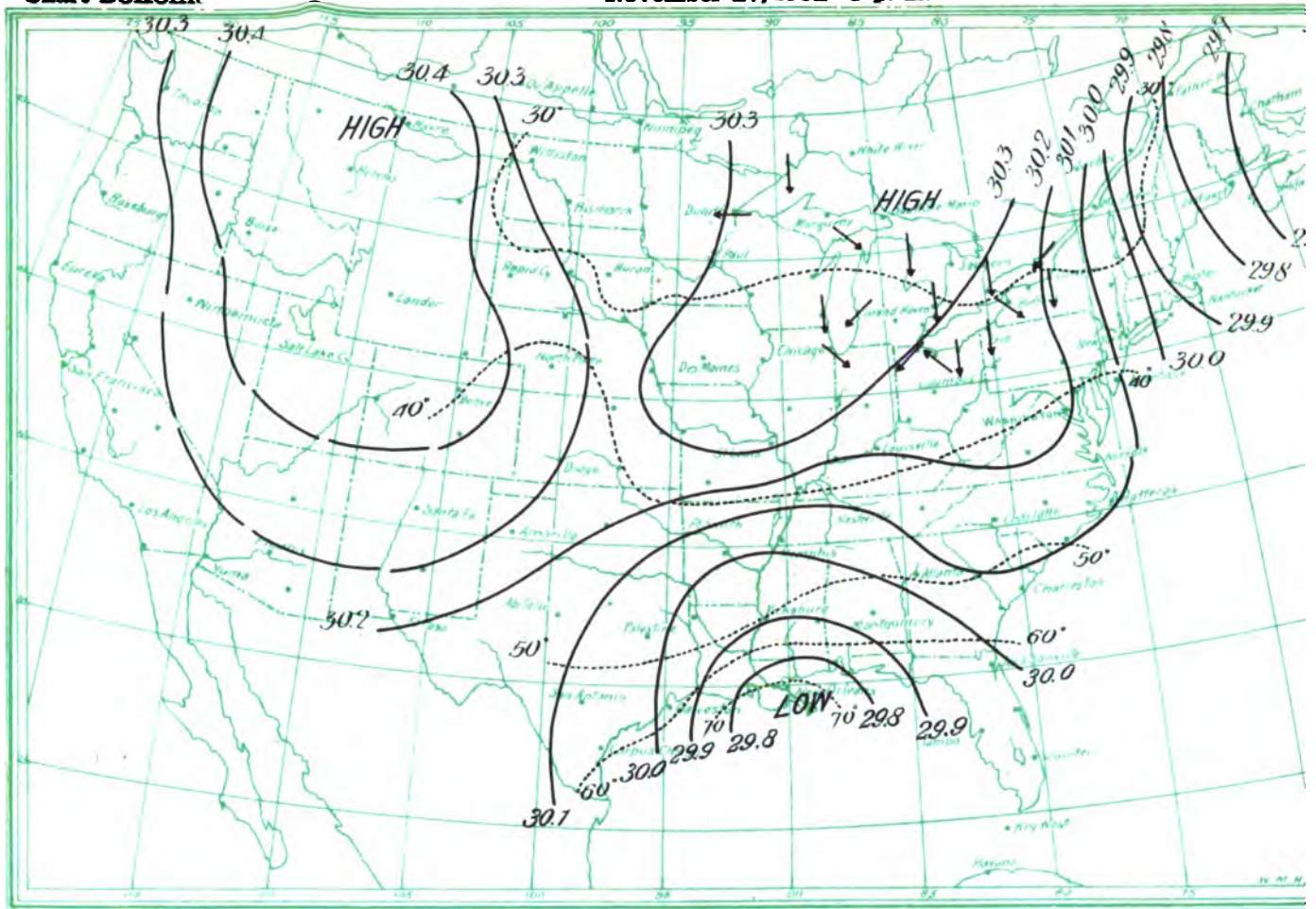


Chart DXXIV.

November 28, 1882—7 a. m.

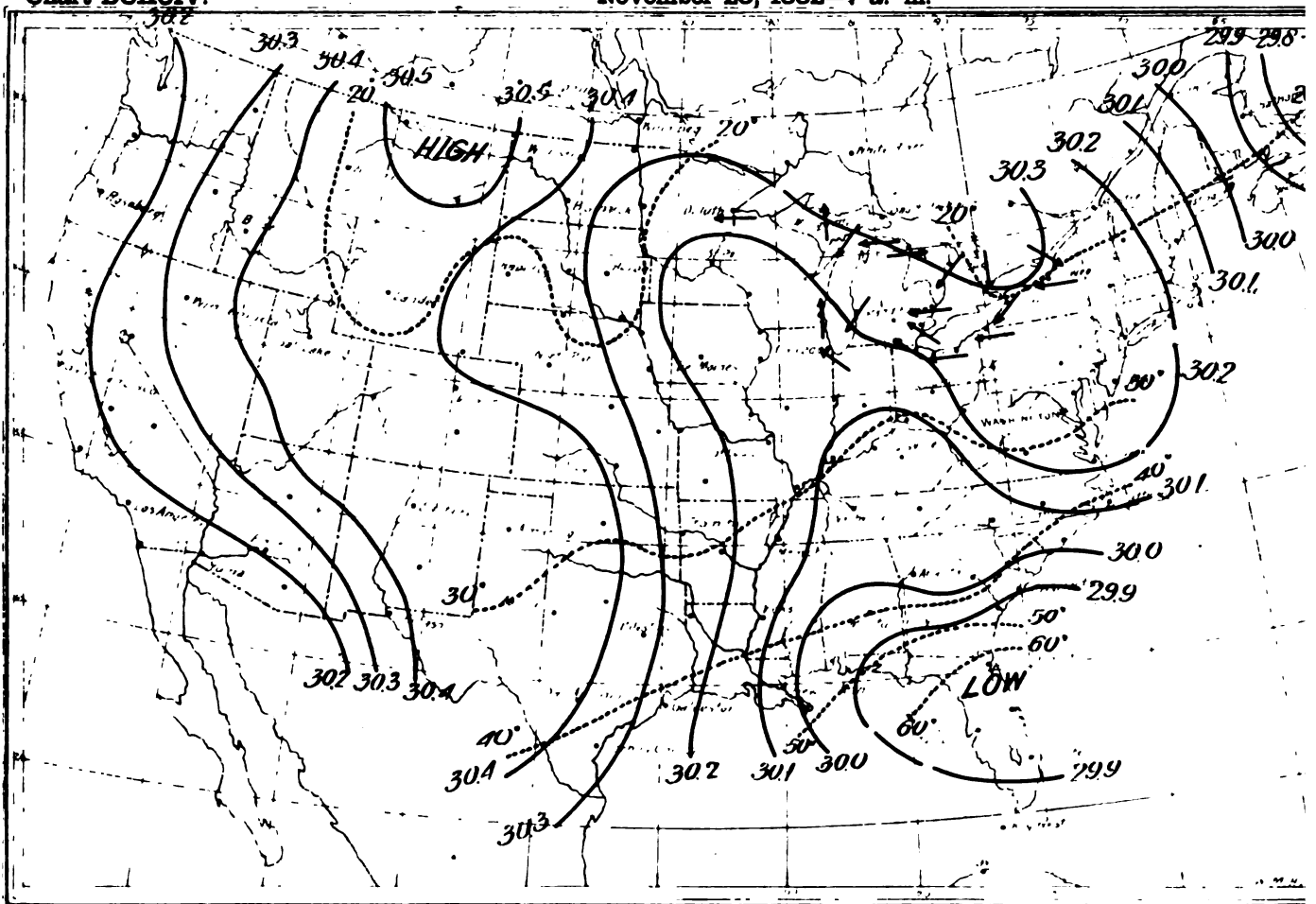


Chart DOXOV.

November 28, 1882—8 p. m.

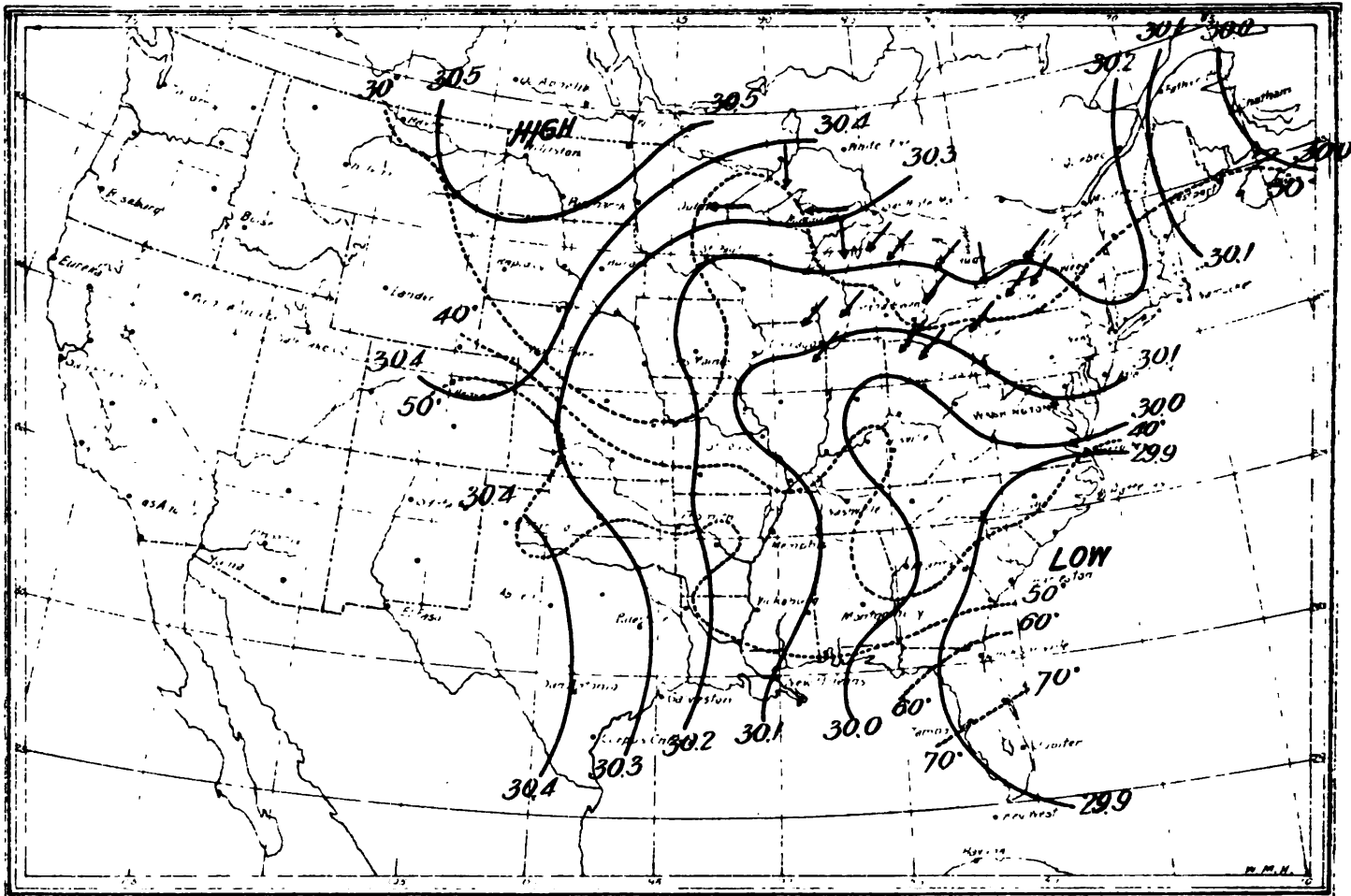


Chart DOXOVI.

November 29, 1882—7 a. m.

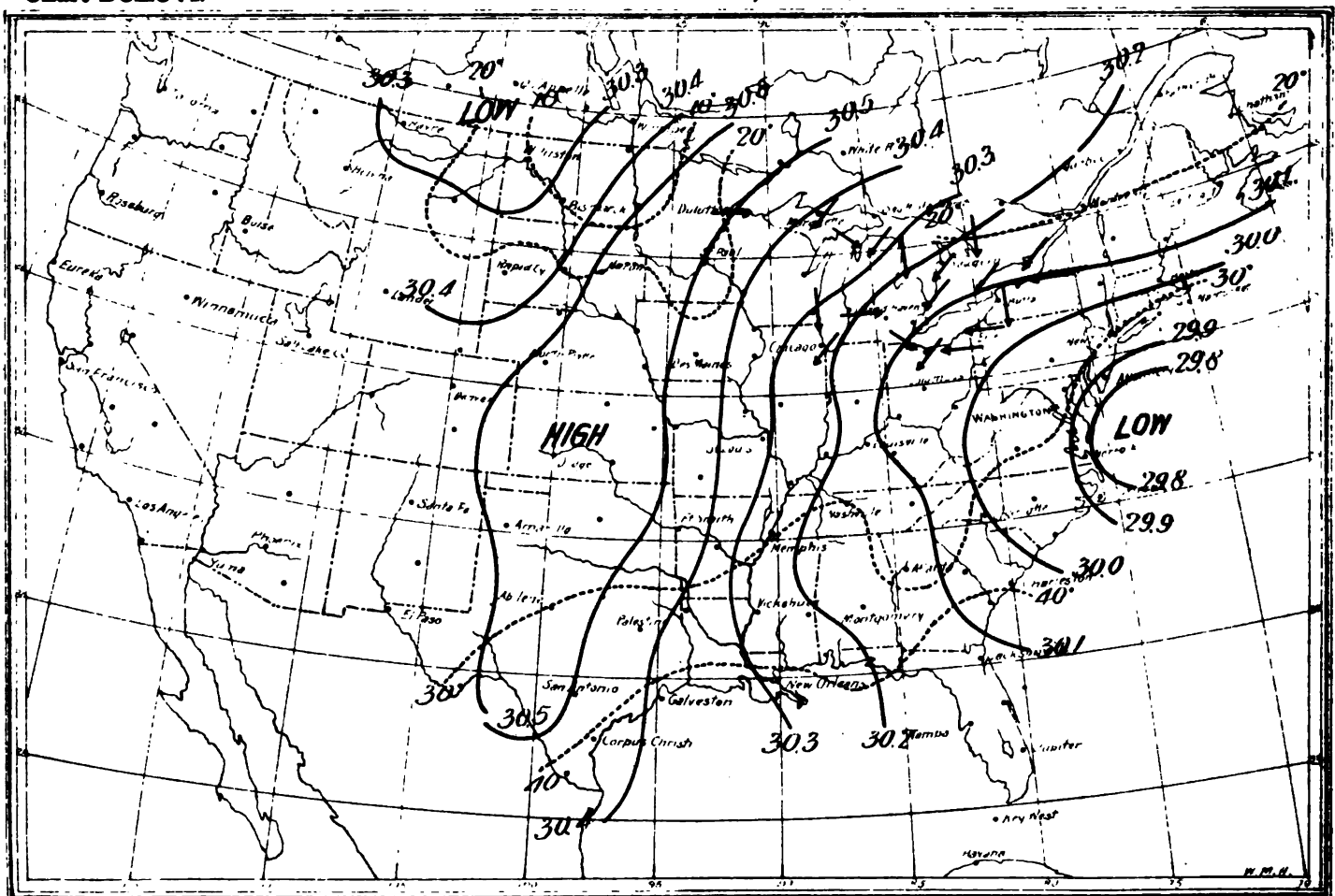


Chart DOXOVII.

November 10, 1888—7 a. m.

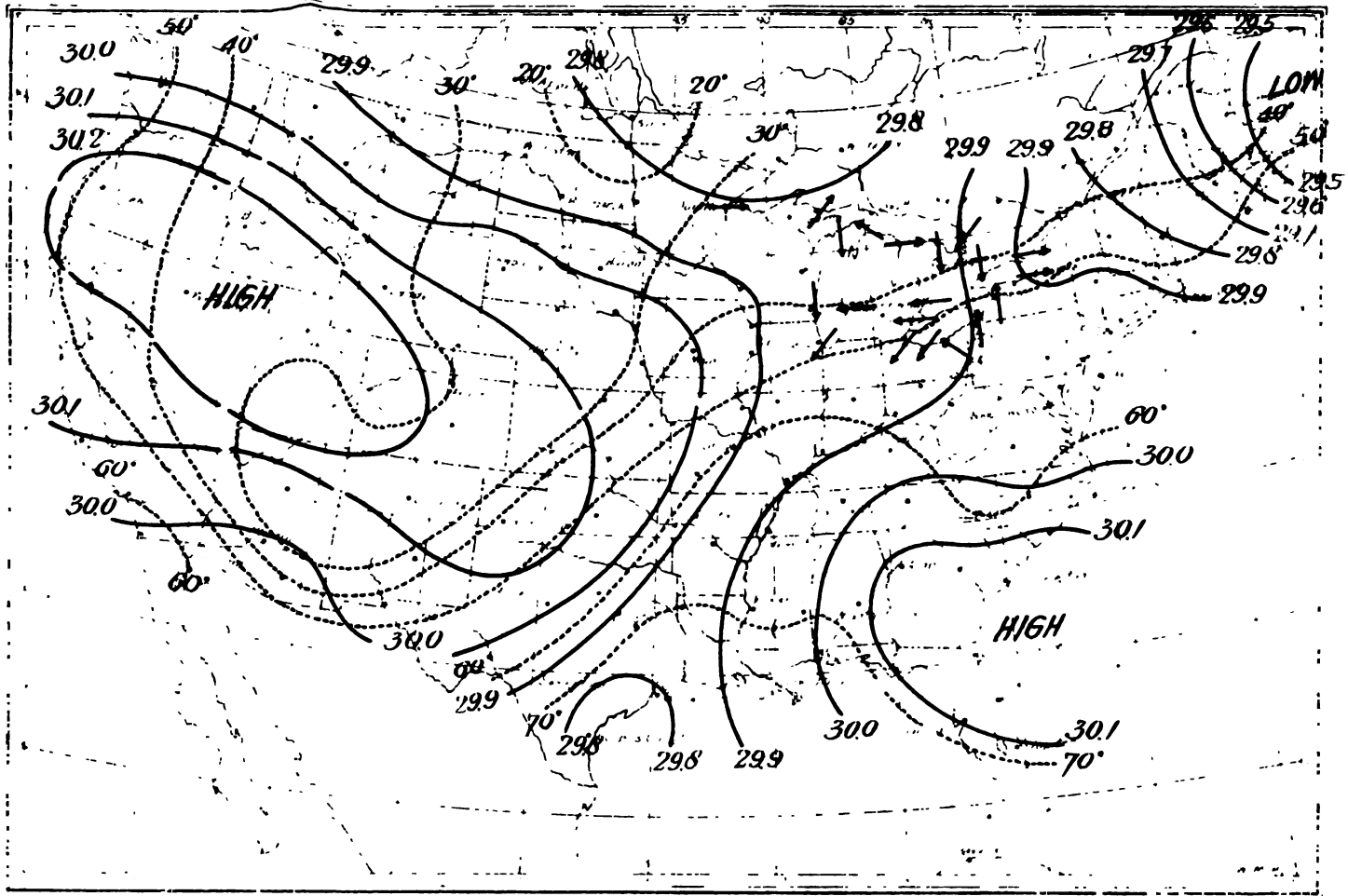


Chart DOXOVIII.

November 10, 1888—3 p. m.

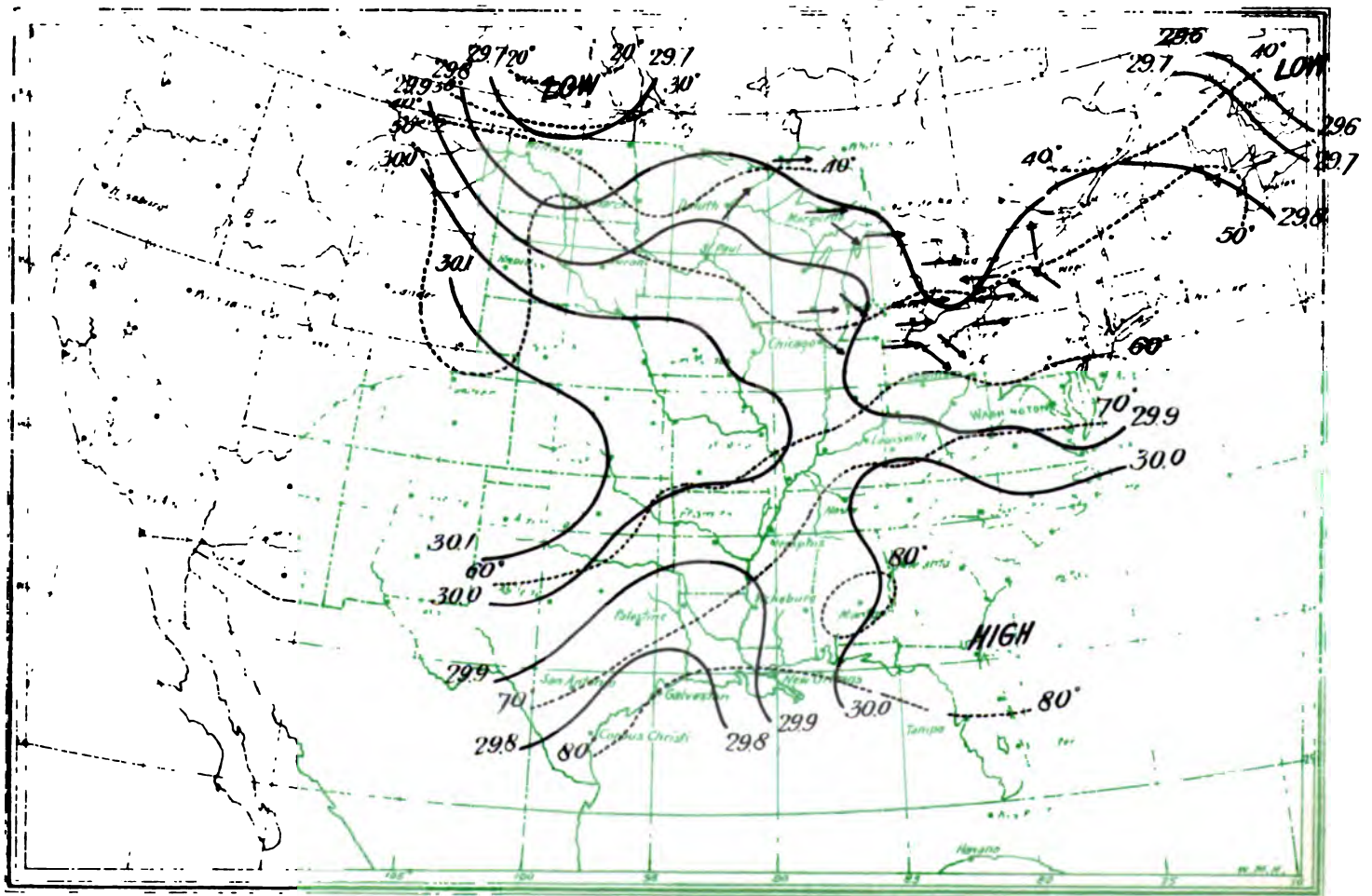


Chart DOXOIX.

November 11, 1888—7 a. m.

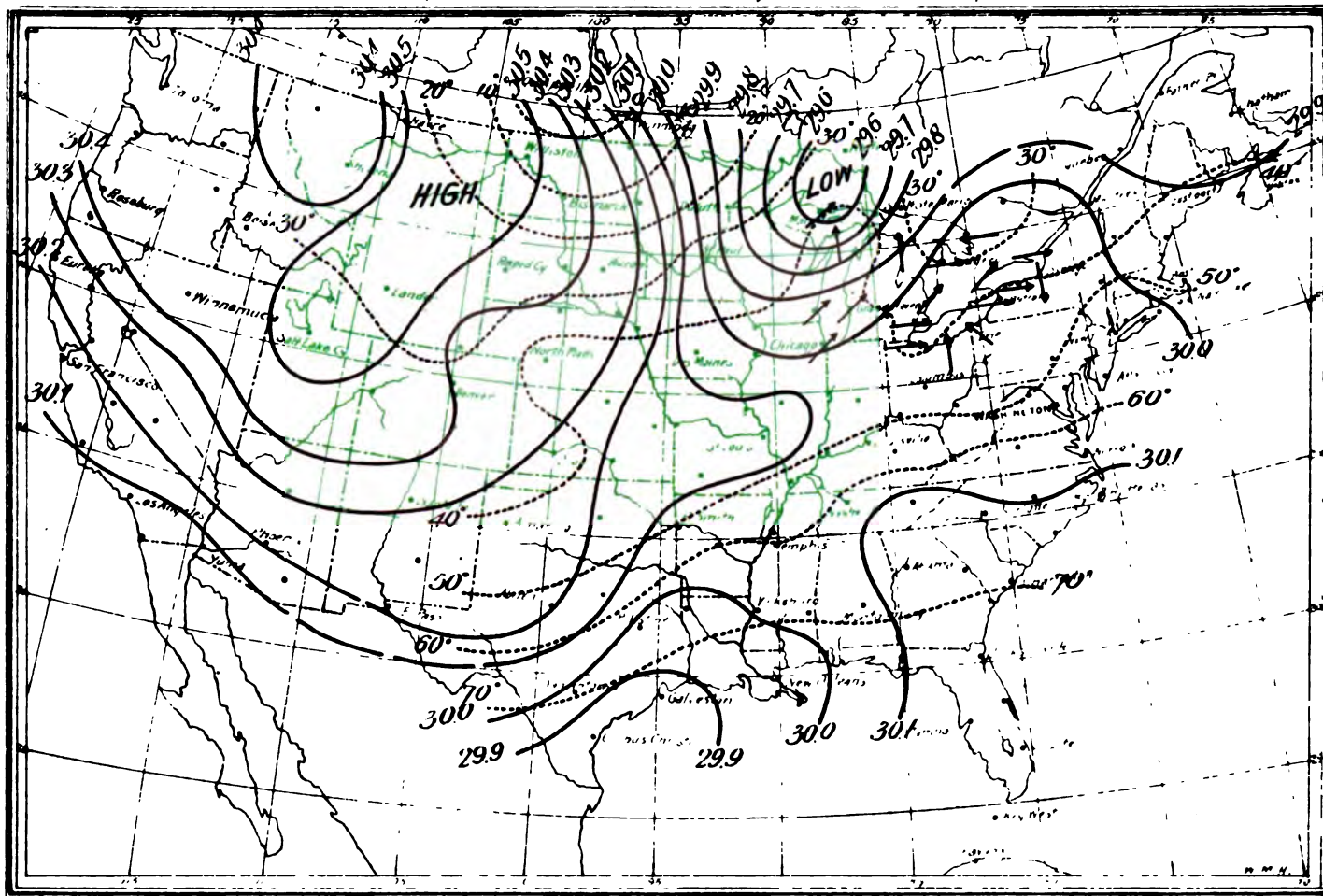


Chart DCC.

November 11, 1888—3 p. m.

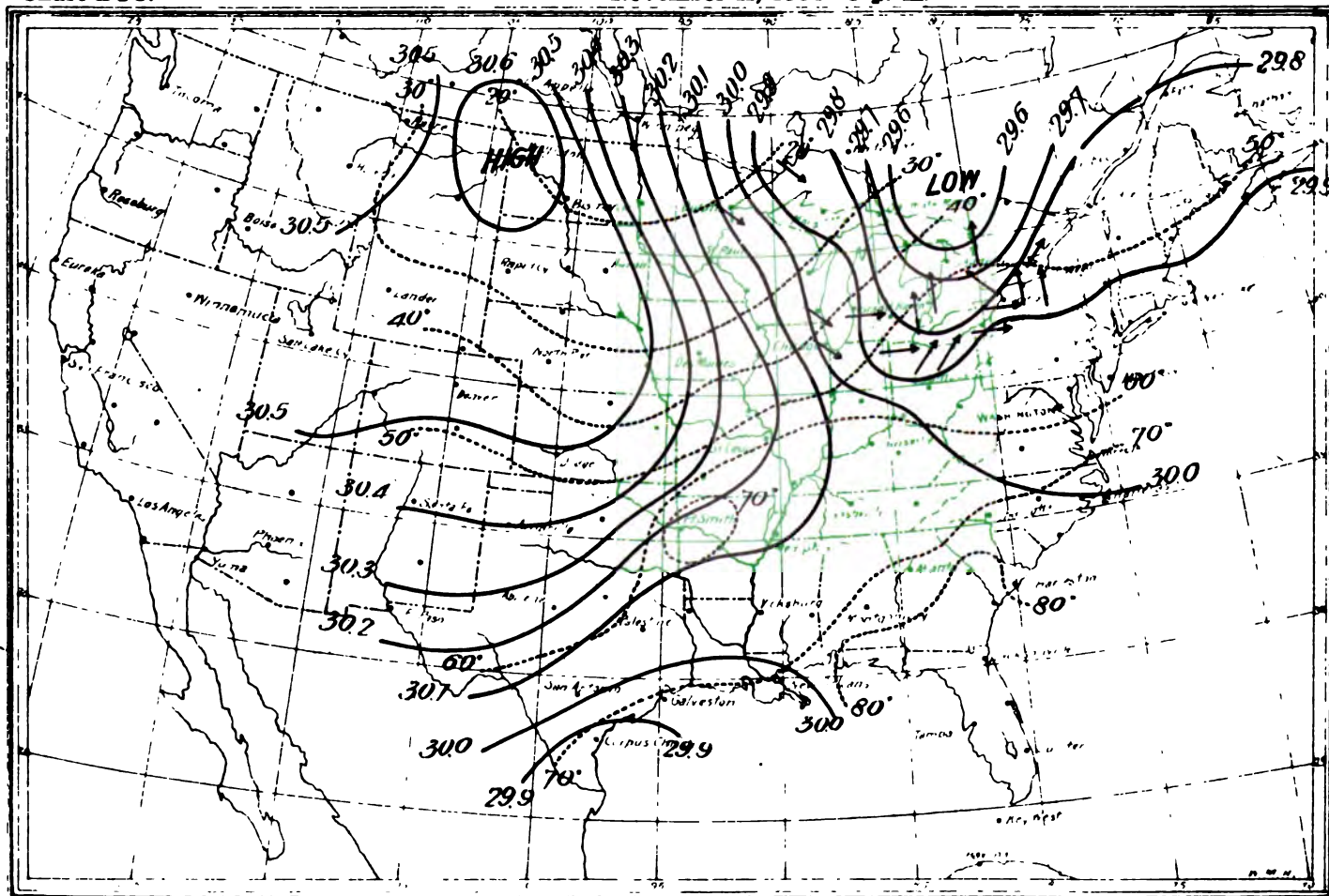


Chart DCOI.

November 25, 1888—7 a. m.

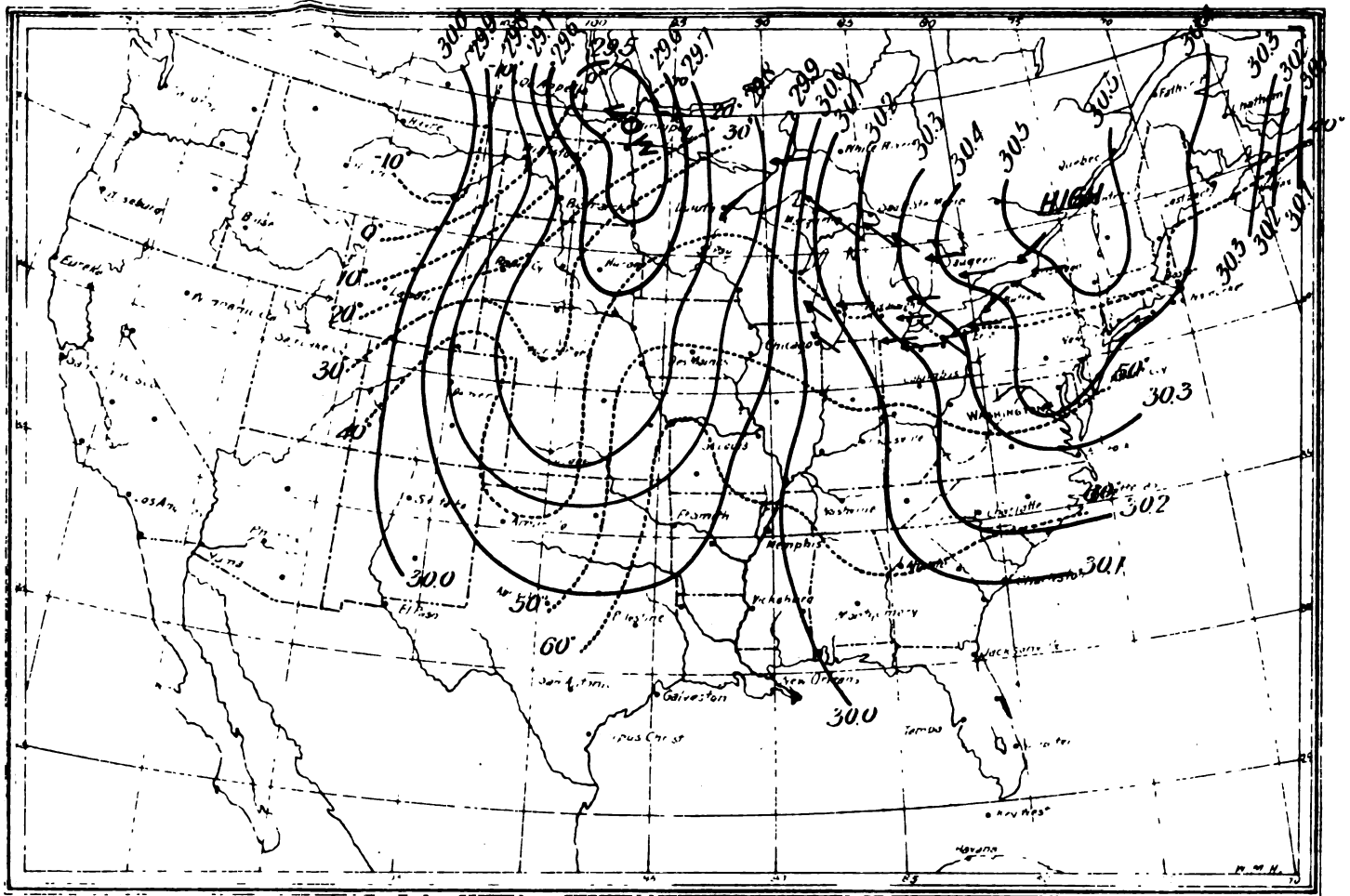


Chart DCOII.

November 25, 1888—3 p. m.

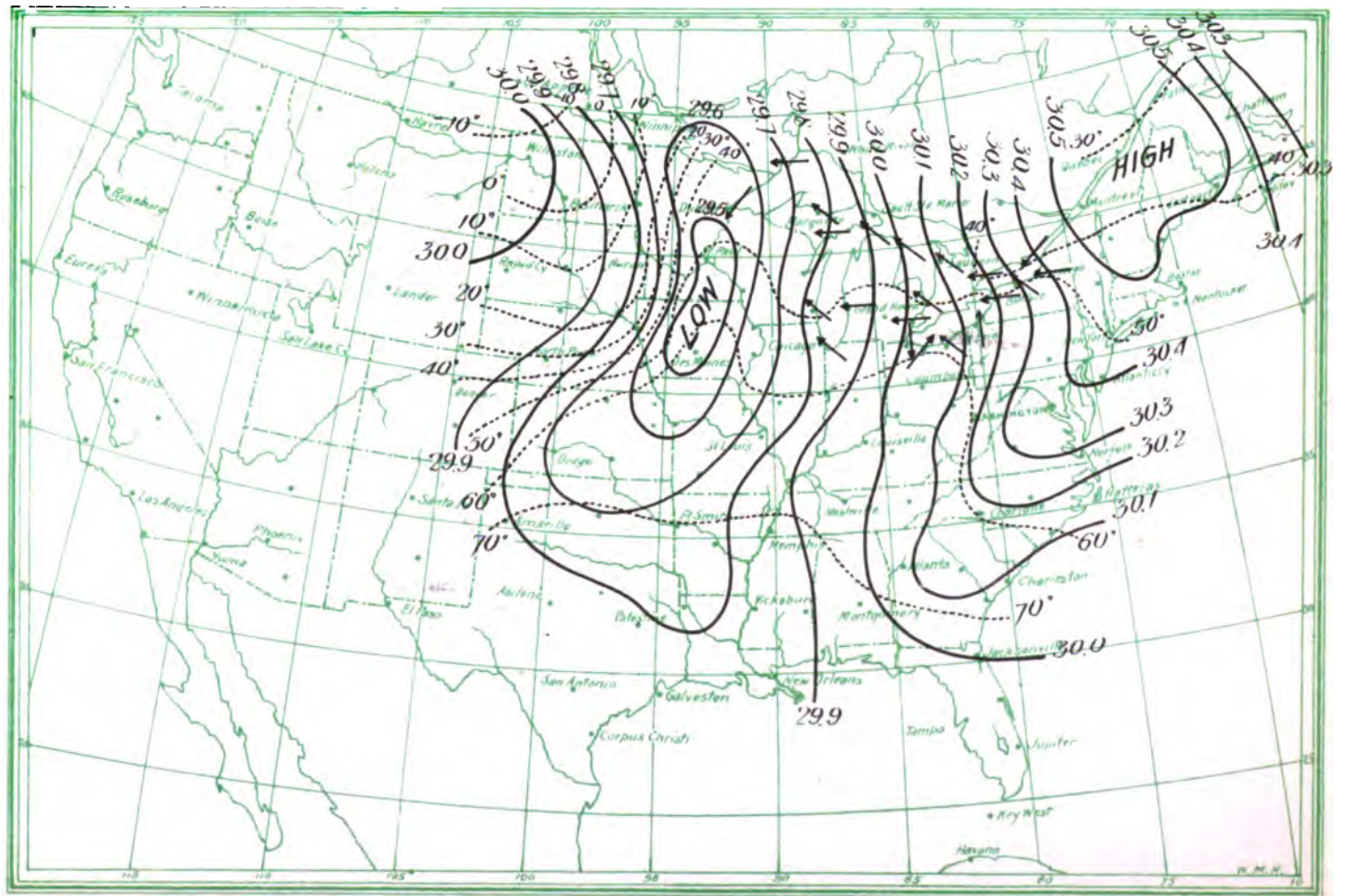


Chart DCOIII.

November 26, 1888-7 a. m.

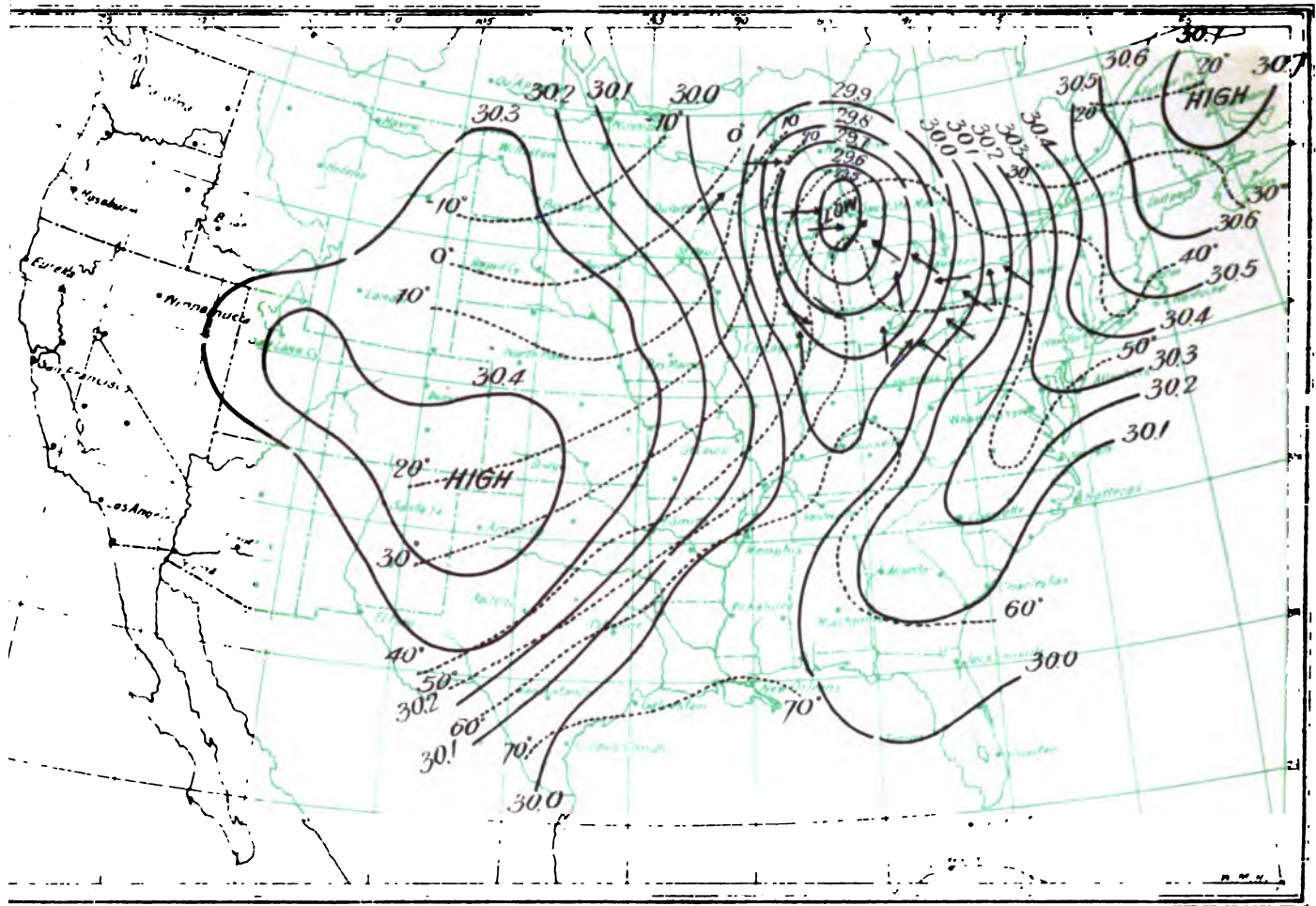


Chart DCOIV.

November 26, 1888-8 p. m.

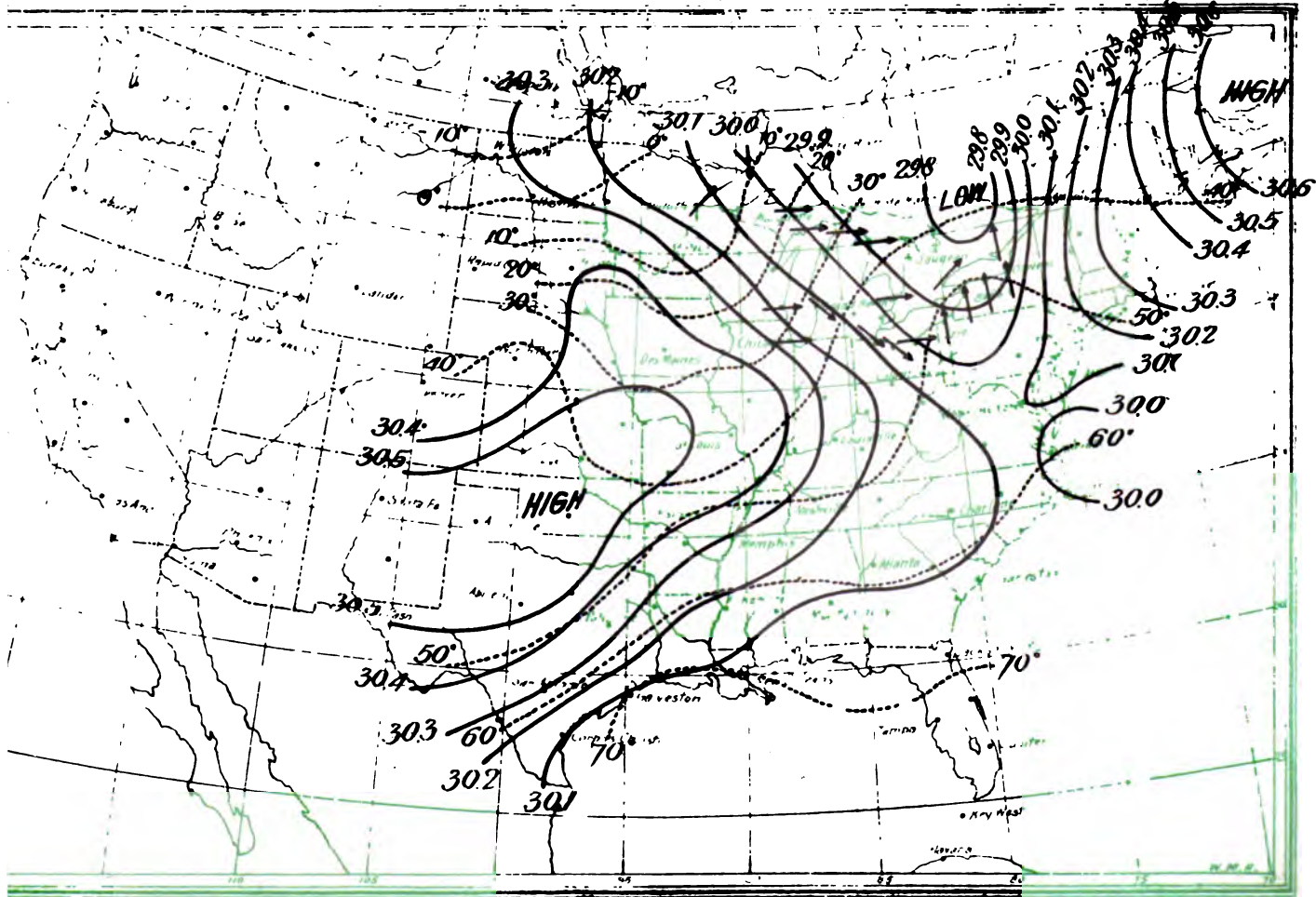


Chart DCOV.

November 8, 1884—7 a. m.

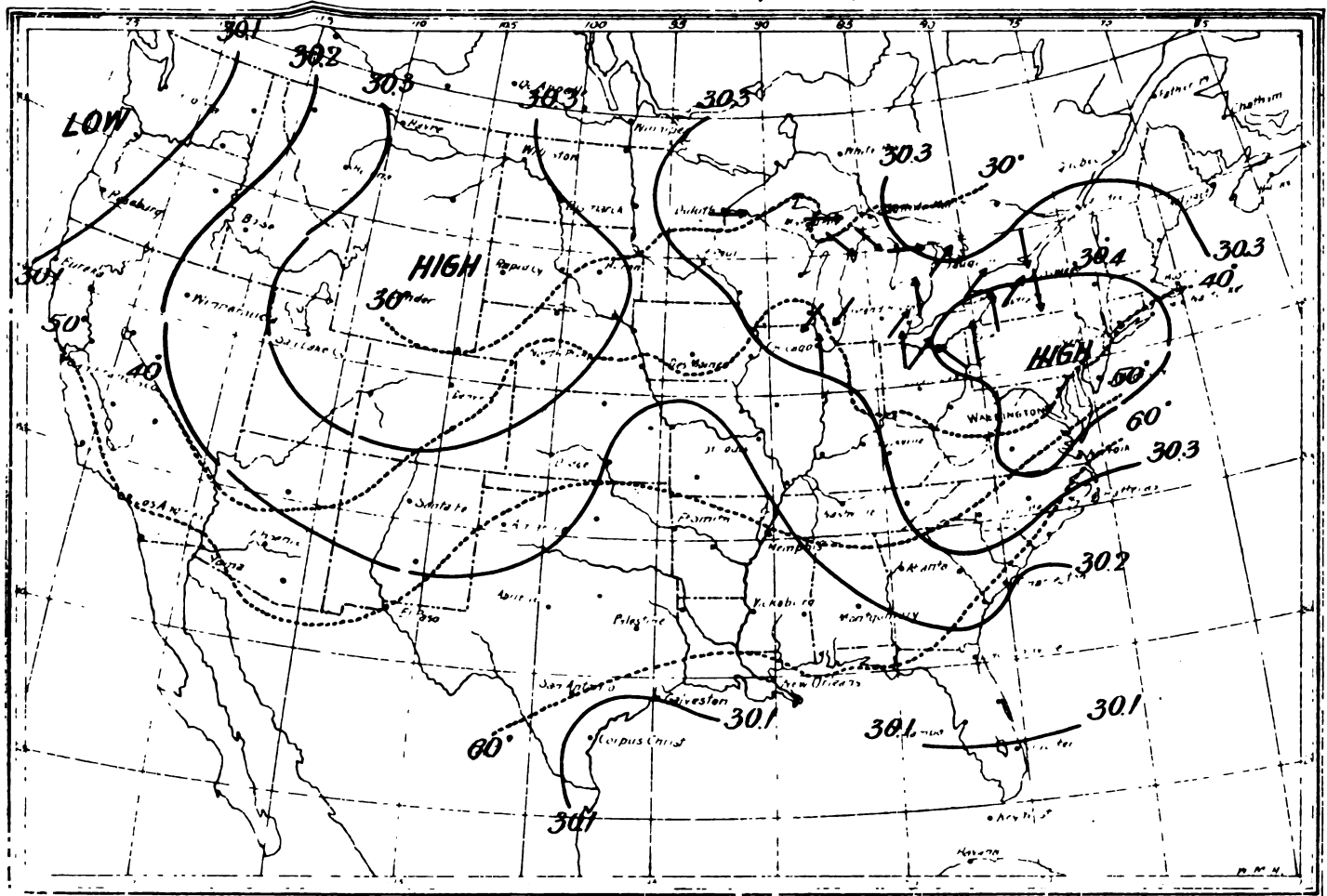


Chart DCOVI.

November 8, 1884—3 p. m.

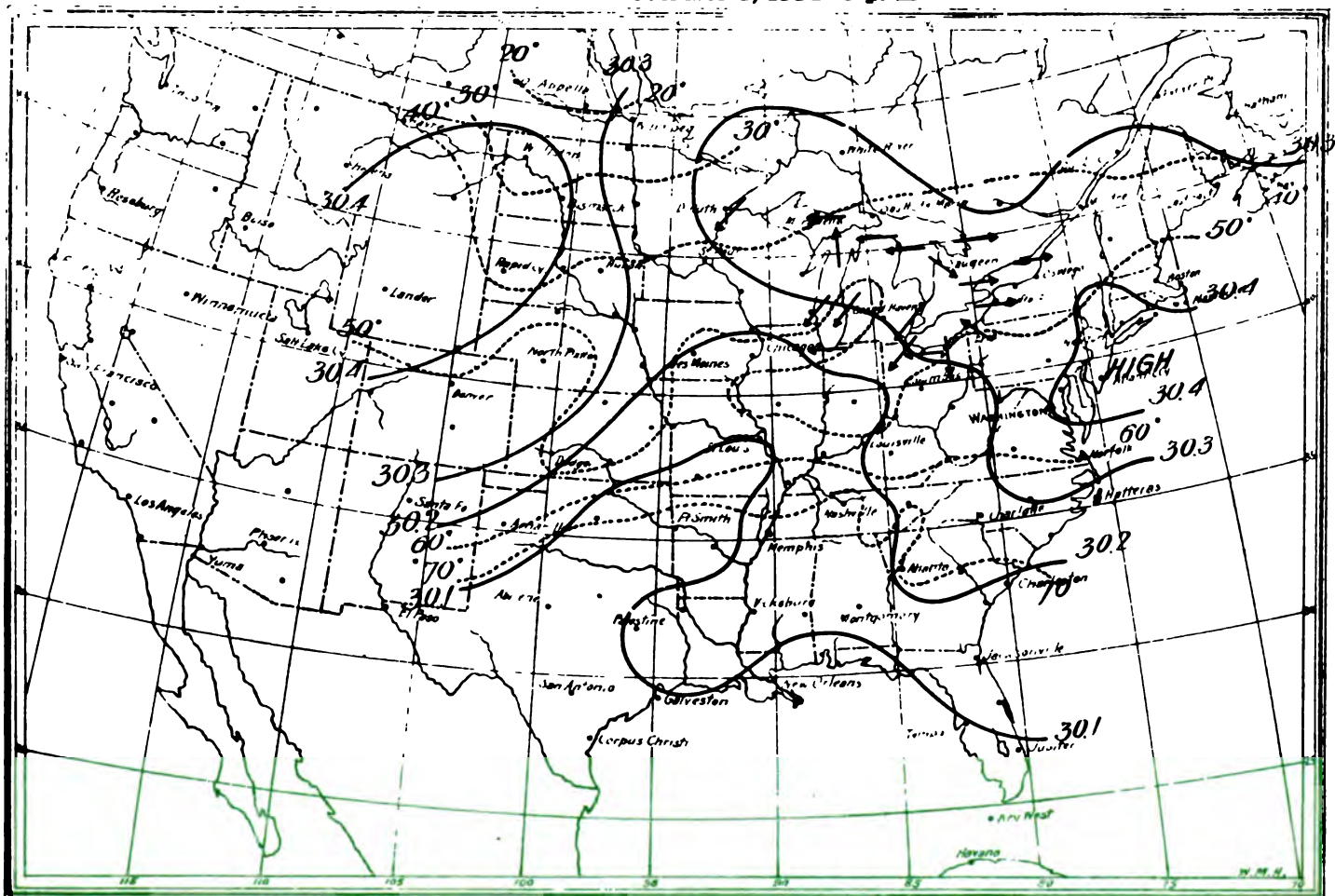


Chart DCOVII.

November 4, 1884—7 a. m.

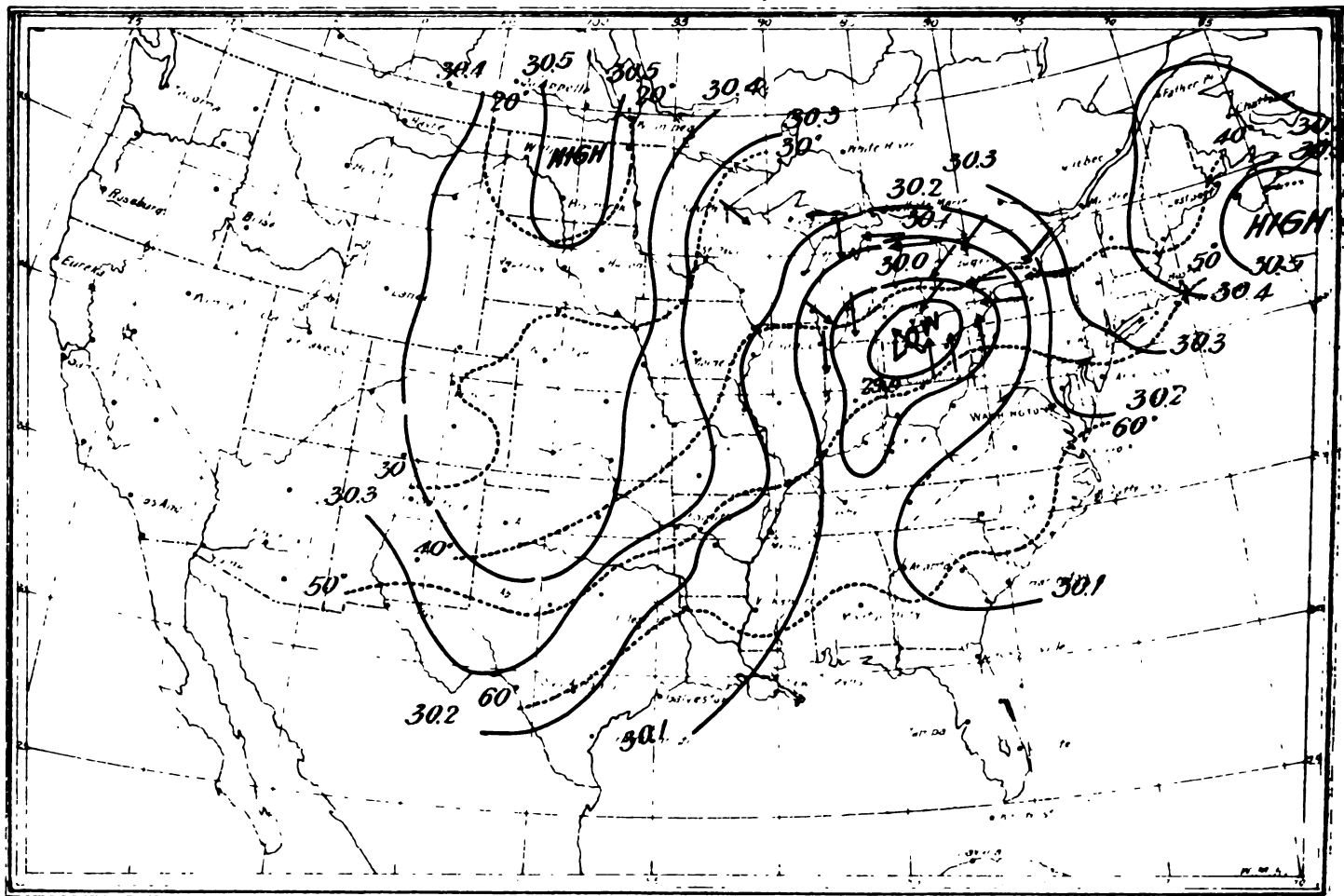


Chart DCOVIII.

November 4, 1884—3 p. m.

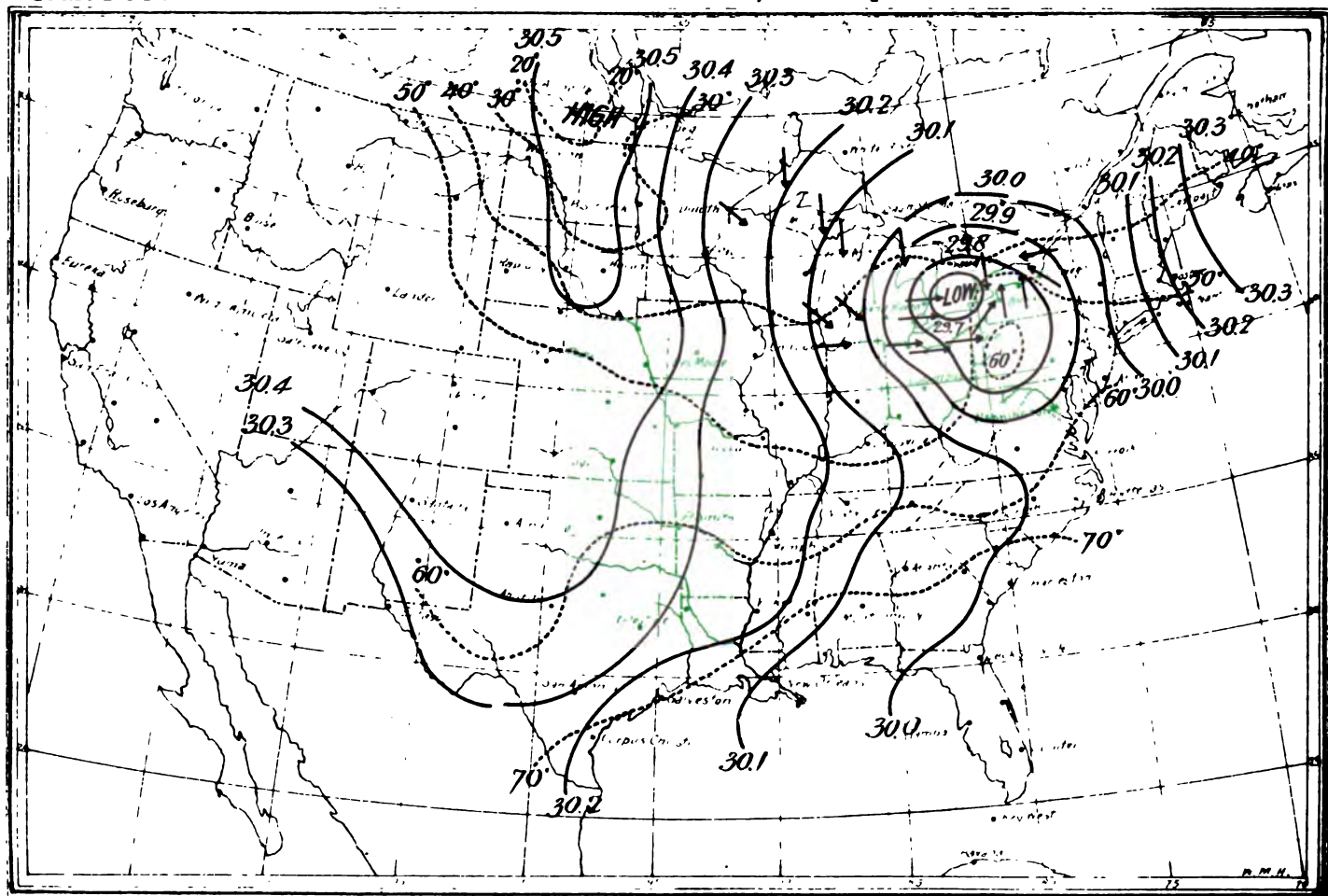


Chart DOOLX.

November 22, 1884—7 a. m.

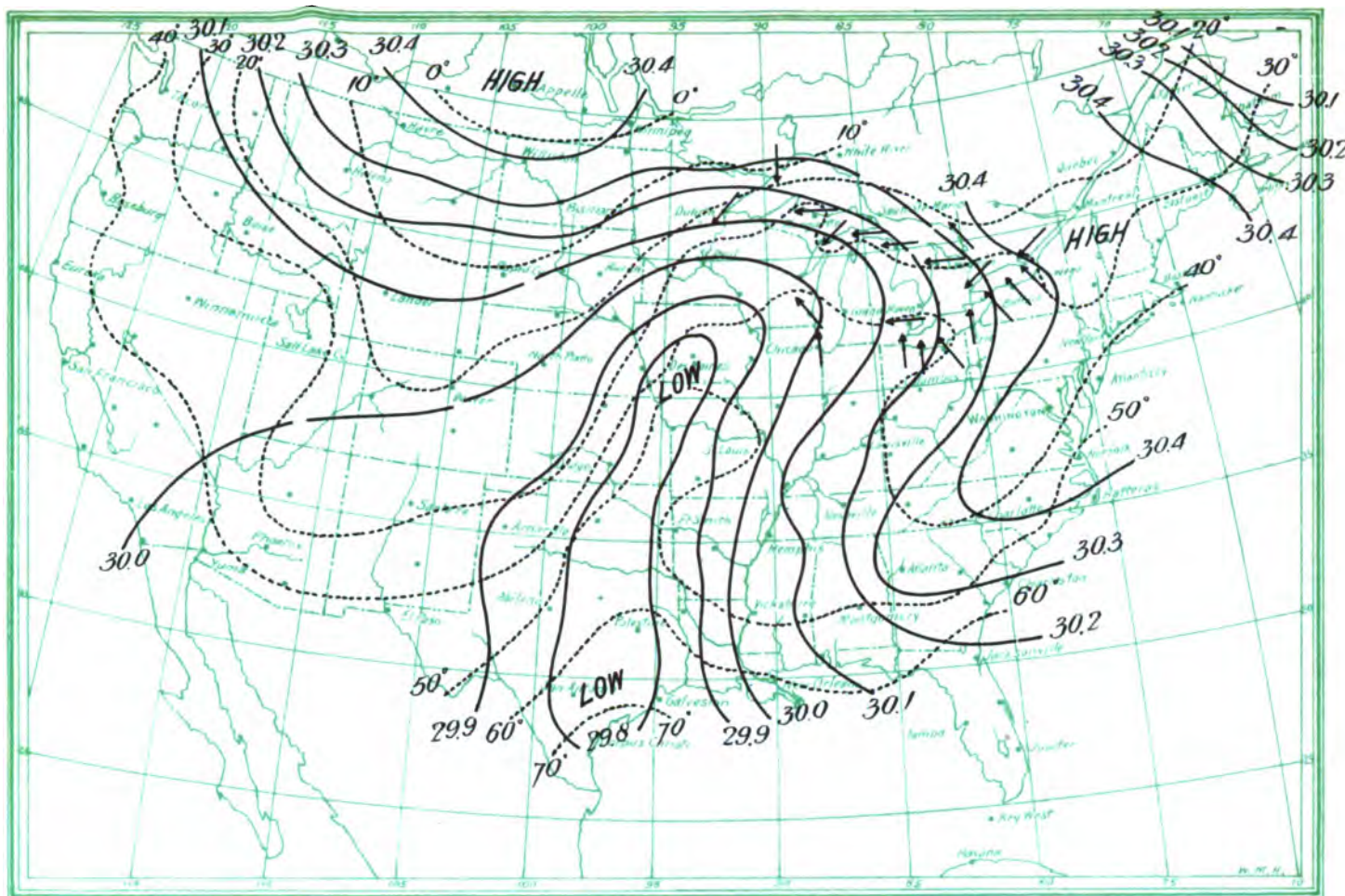


Chart DOOLX.

November 22, 1884—8 p. m.

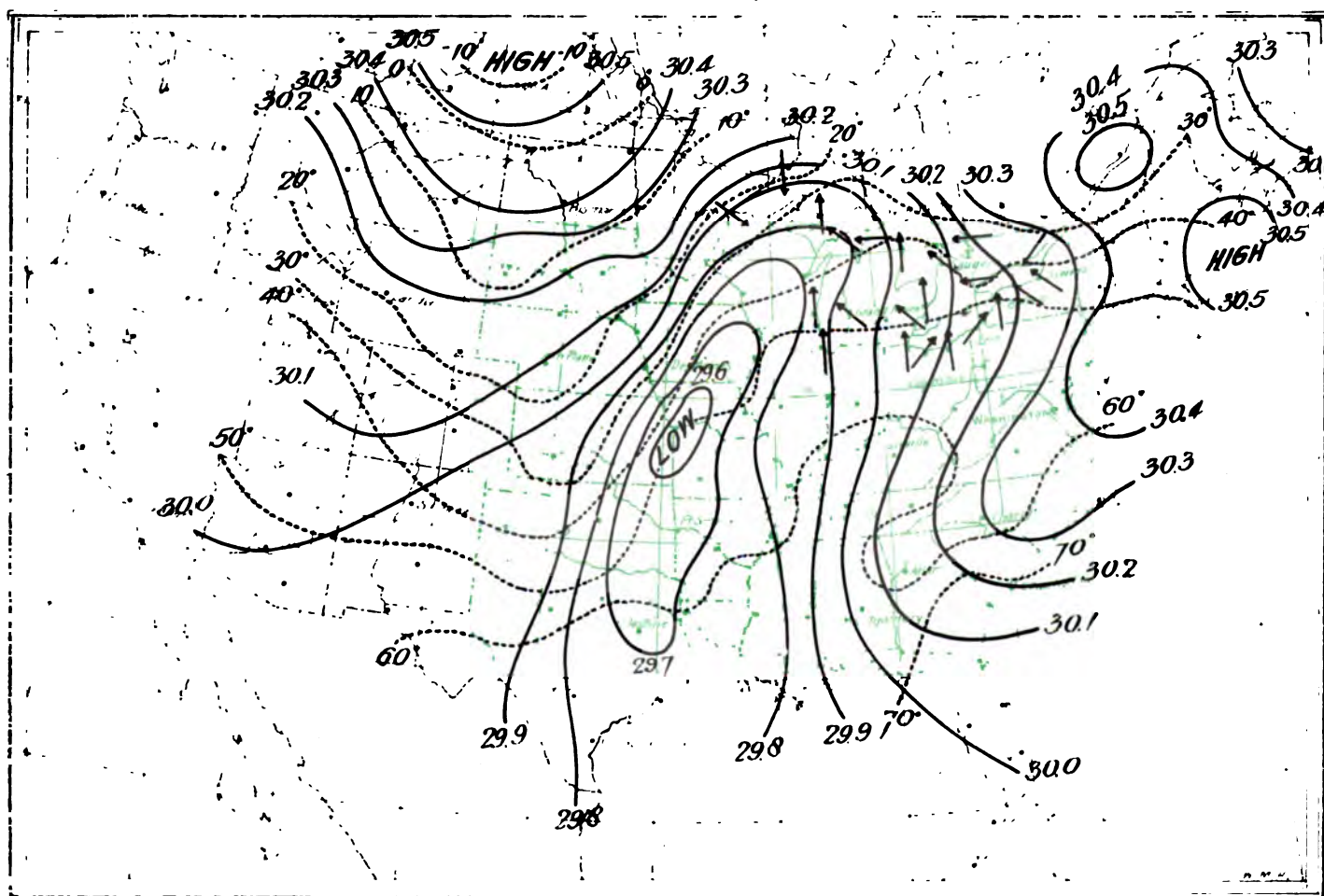


Chart DOXOV.

November 28, 1882—8 p. m.

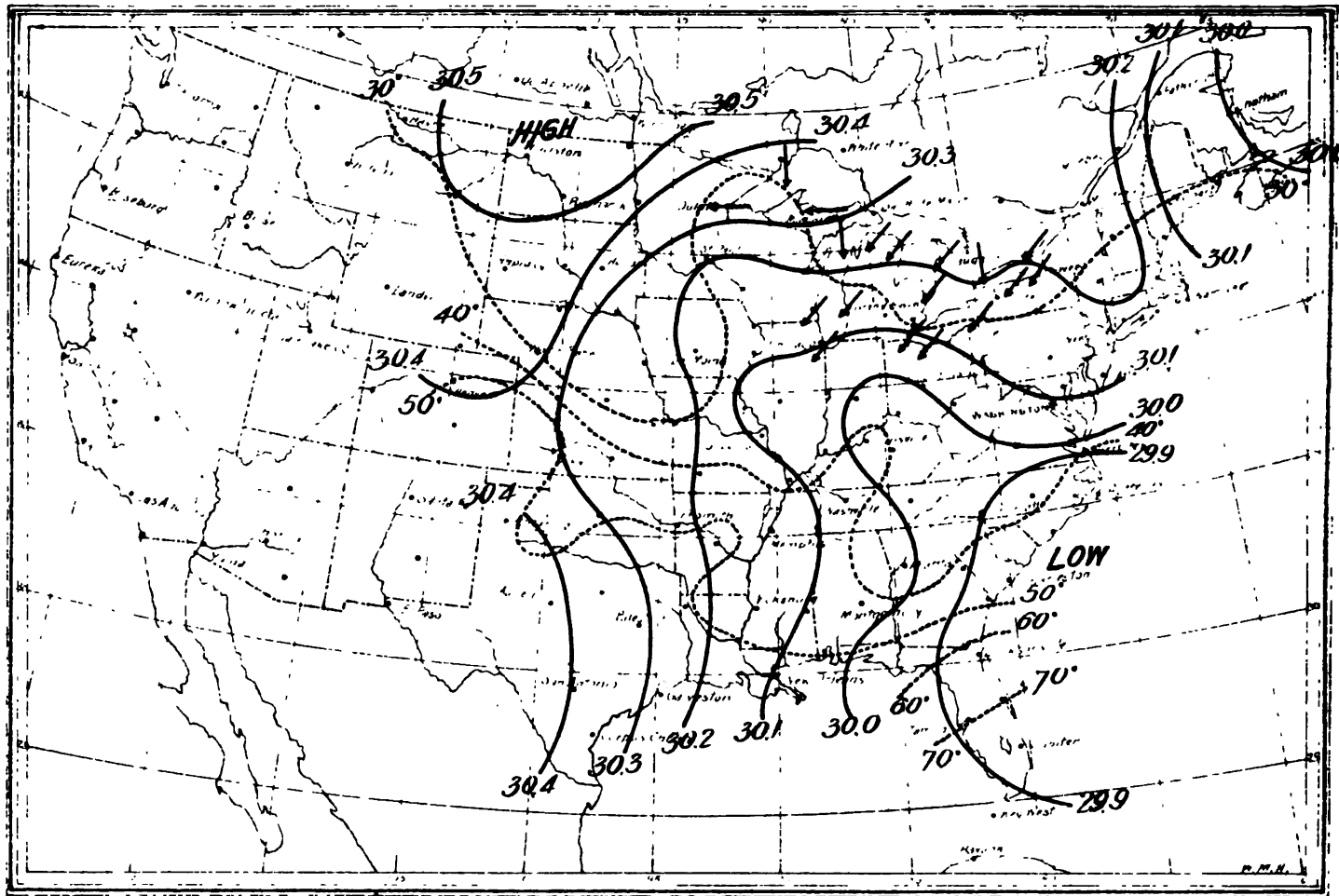


Chart DOXOVI.

November 29, 1882—7 a. m.

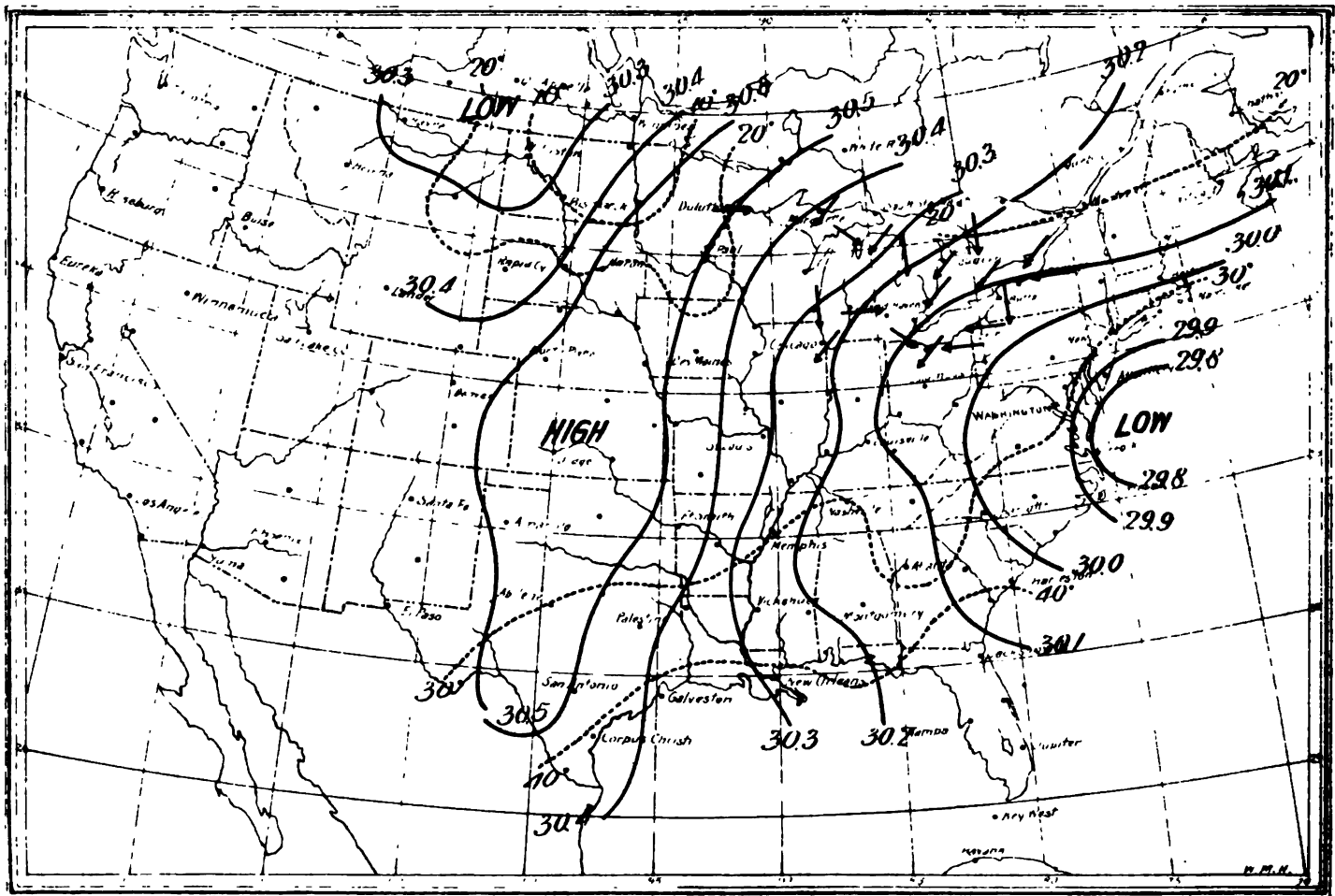


Chart DOXOVII.

November 10, 1883—7 a. m.

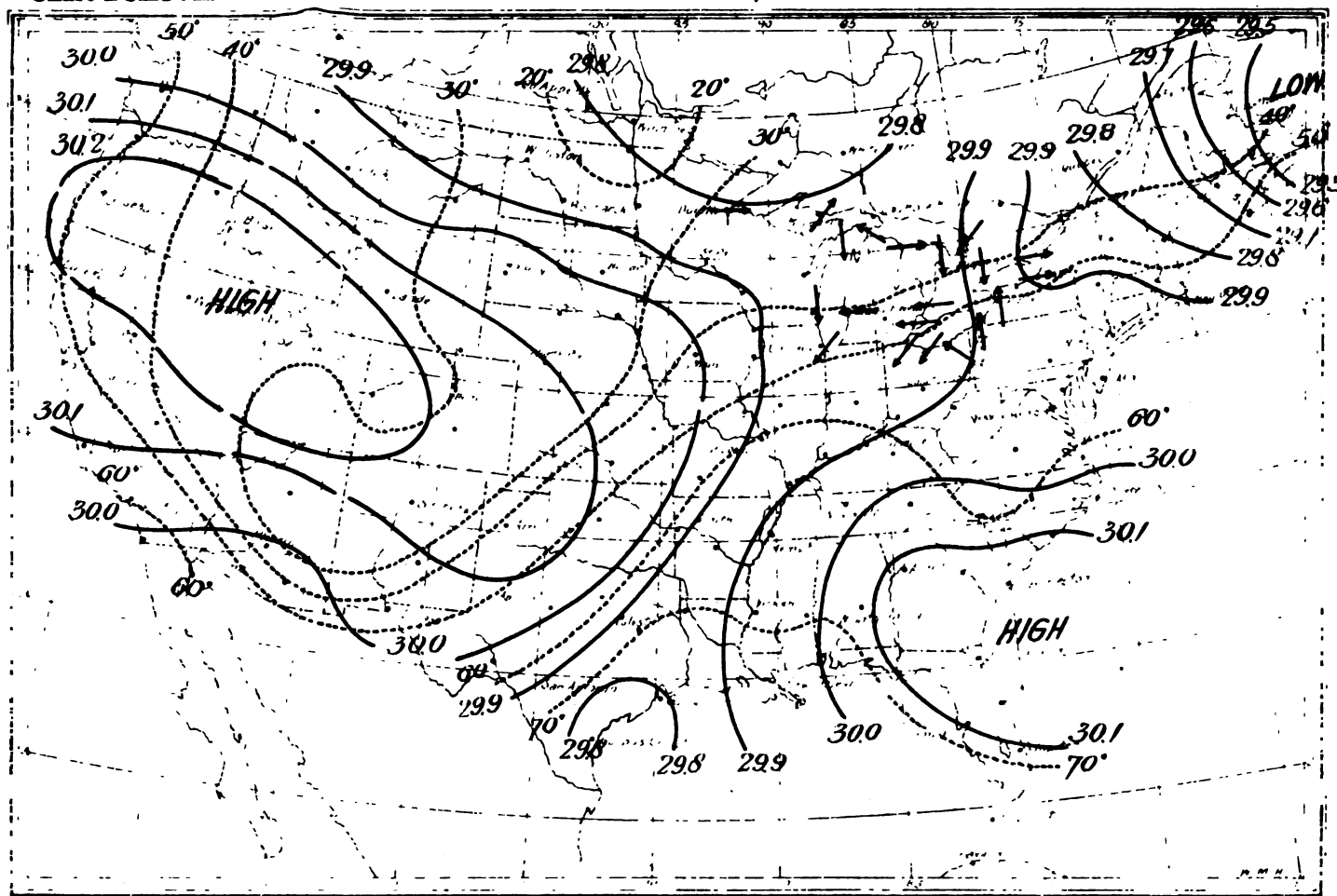


Chart DOXOVIII.

November 10, 1883—3 p. m.

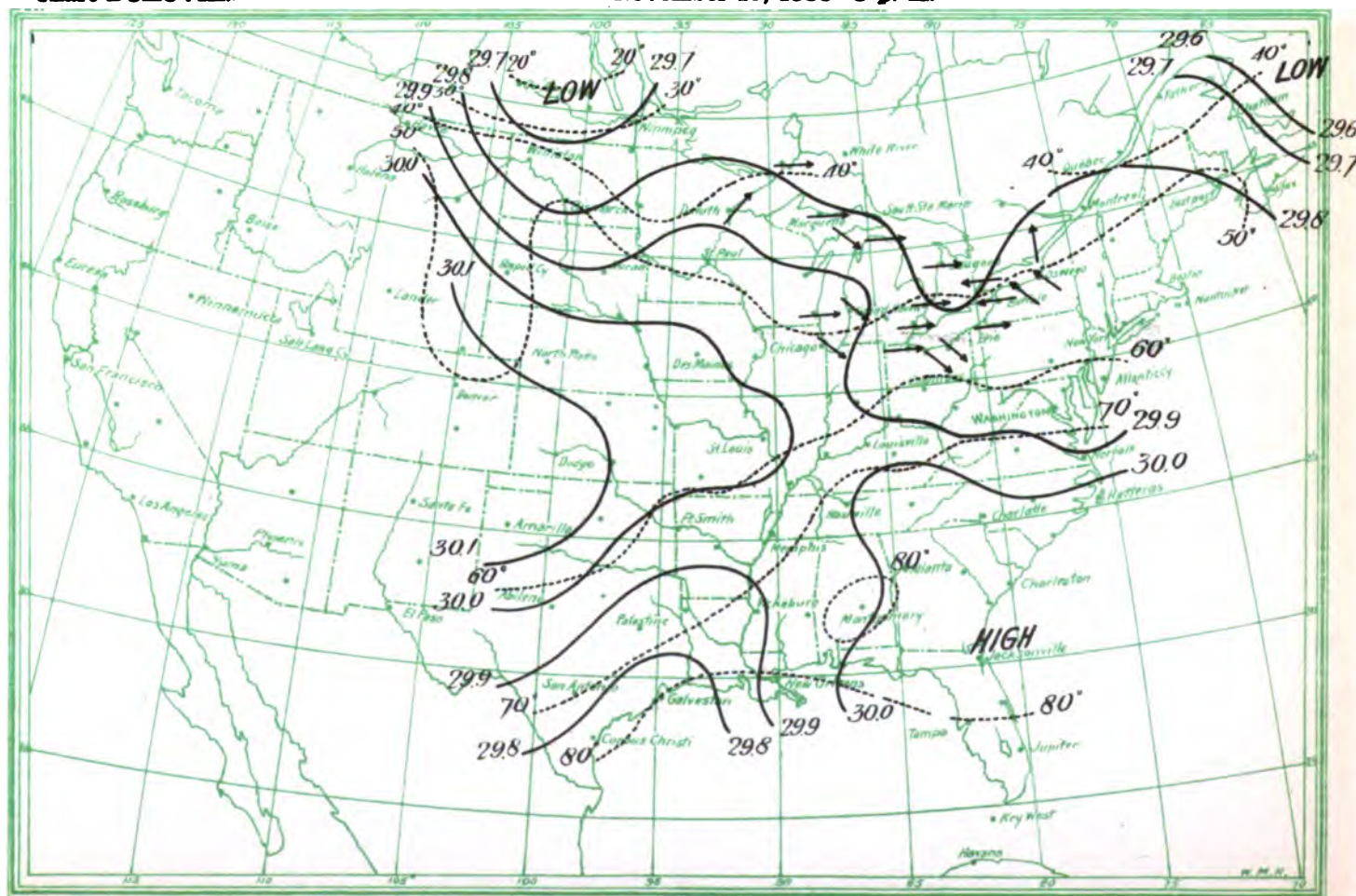


Chart DOXOIX.

November 11, 1888—7 a. m.

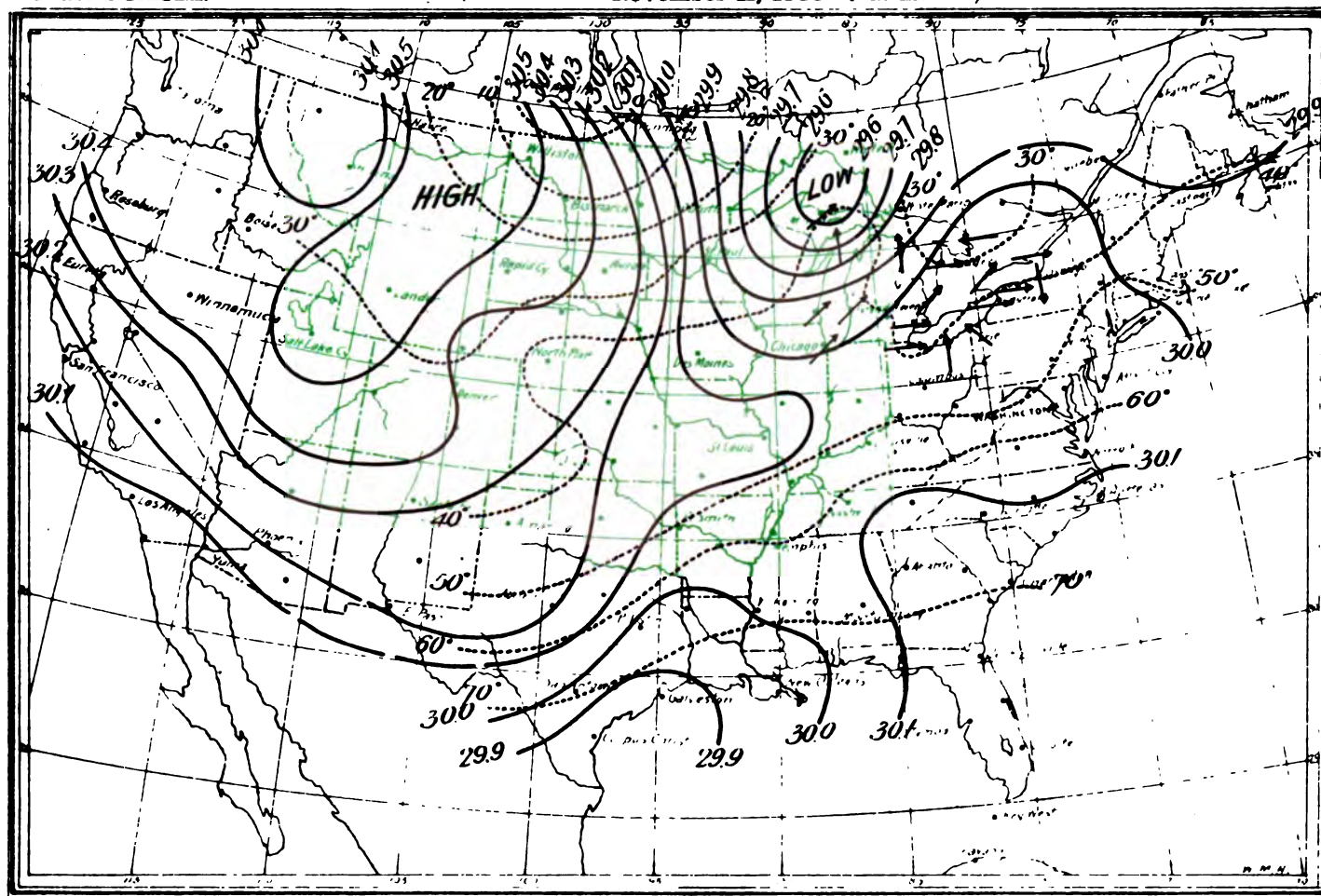


Chart DCC.

November 11, 1888—3 p. m.

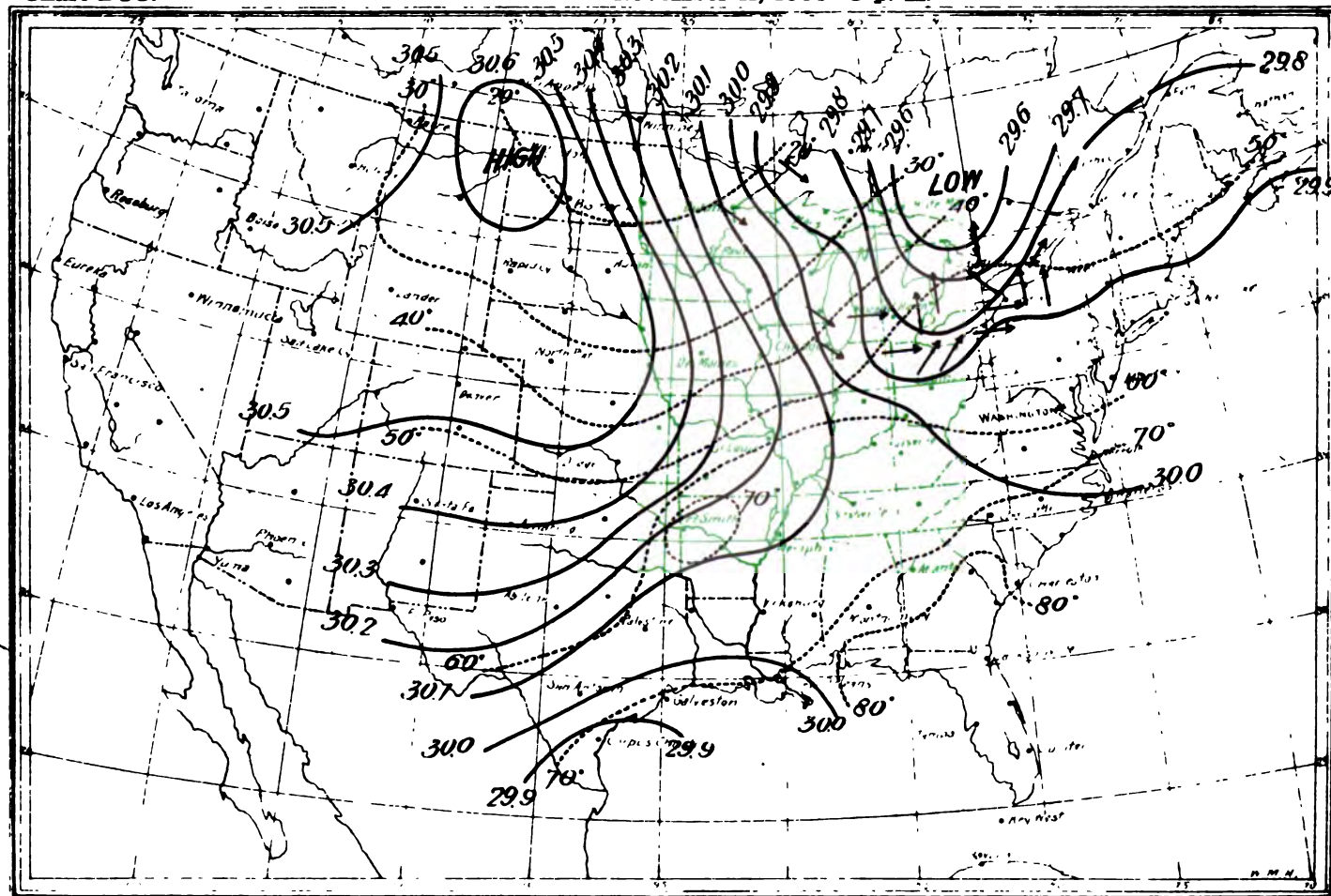


Chart DCOI.

November 25, 1888—7 a. m.

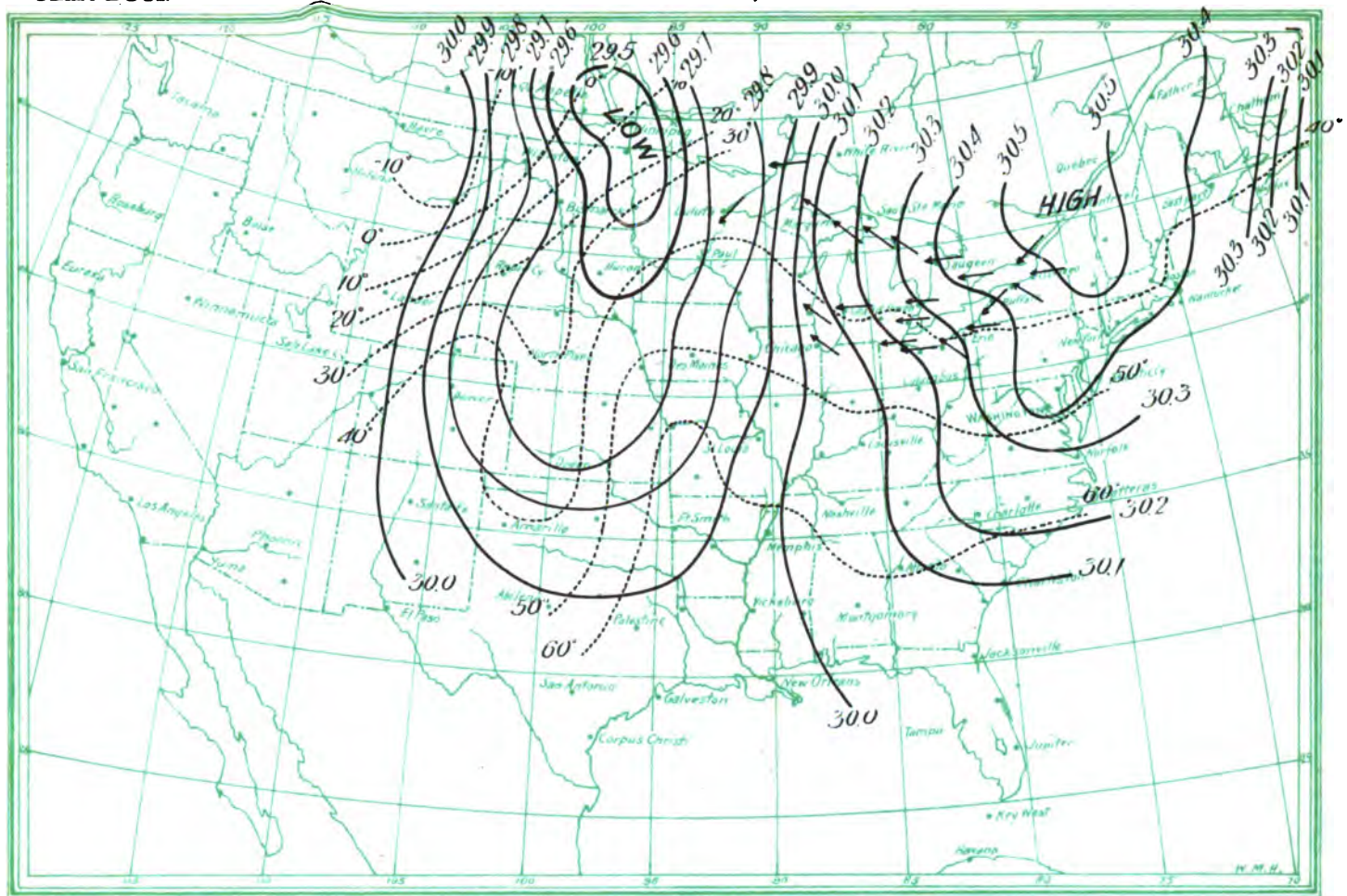


Chart DCOII.

November 25, 1888—3 p. m.

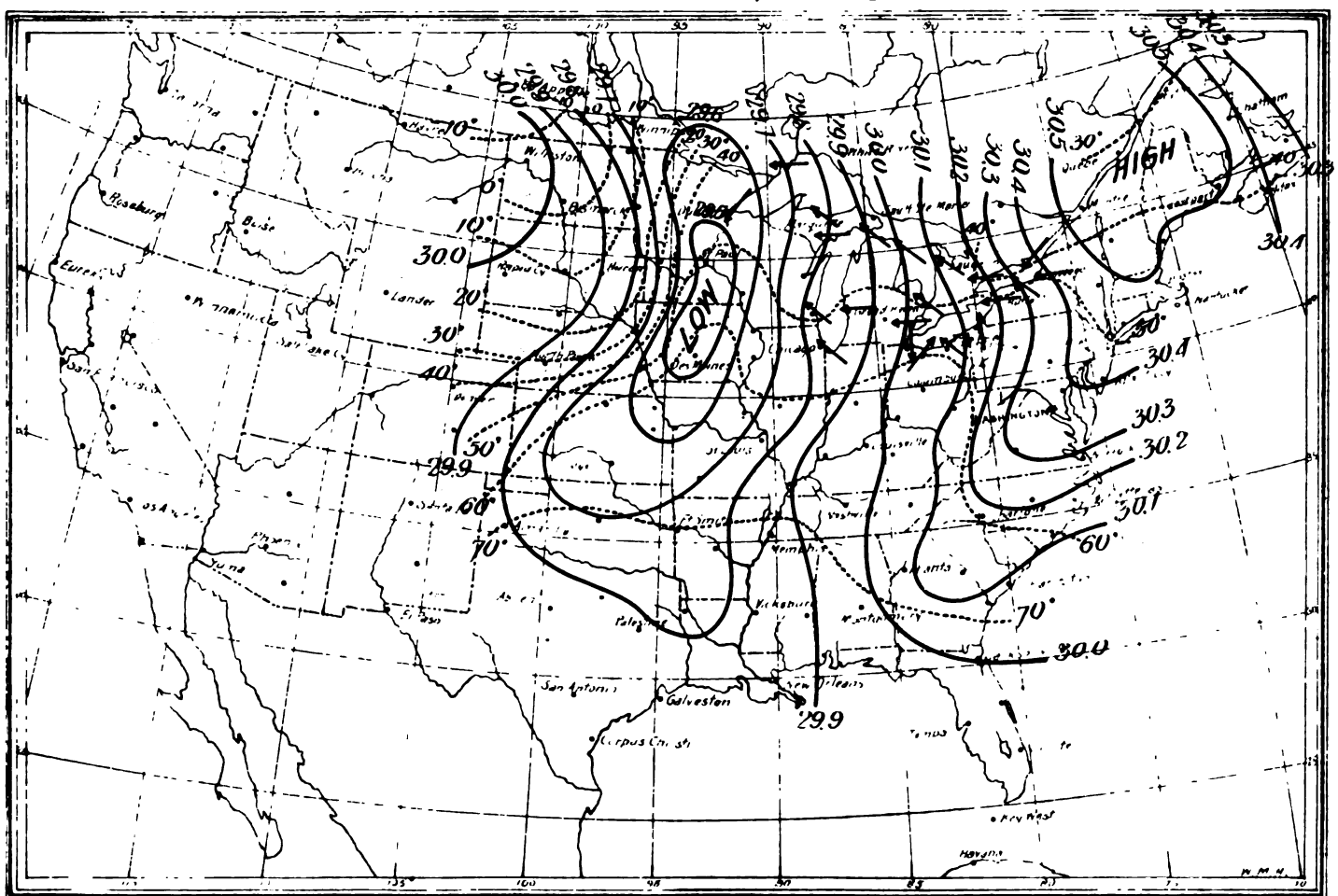


Chart DCCIII.

November 26, 1888—7 a. m.

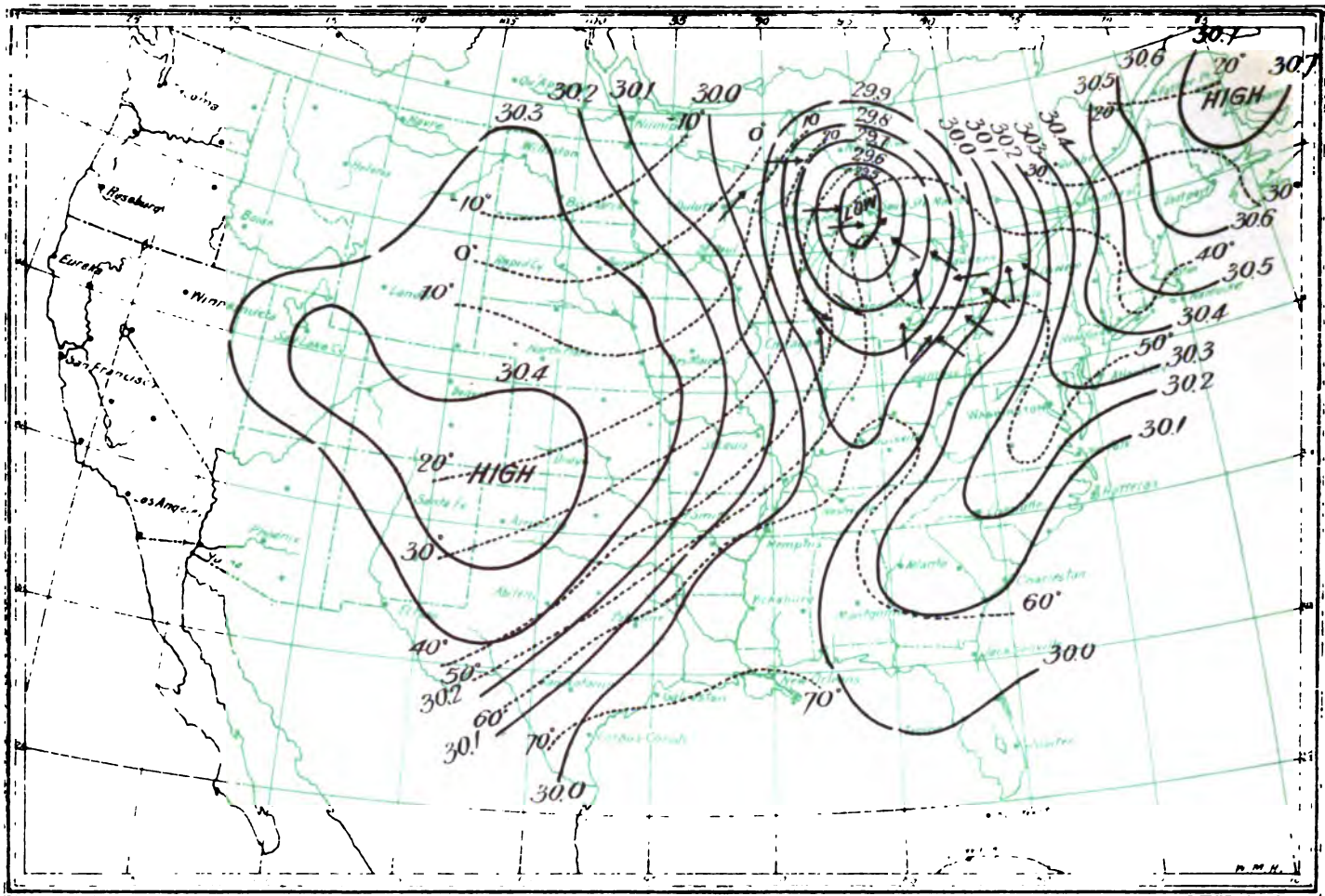


Chart DCCIV.

November 26, 1888—8 p. m.

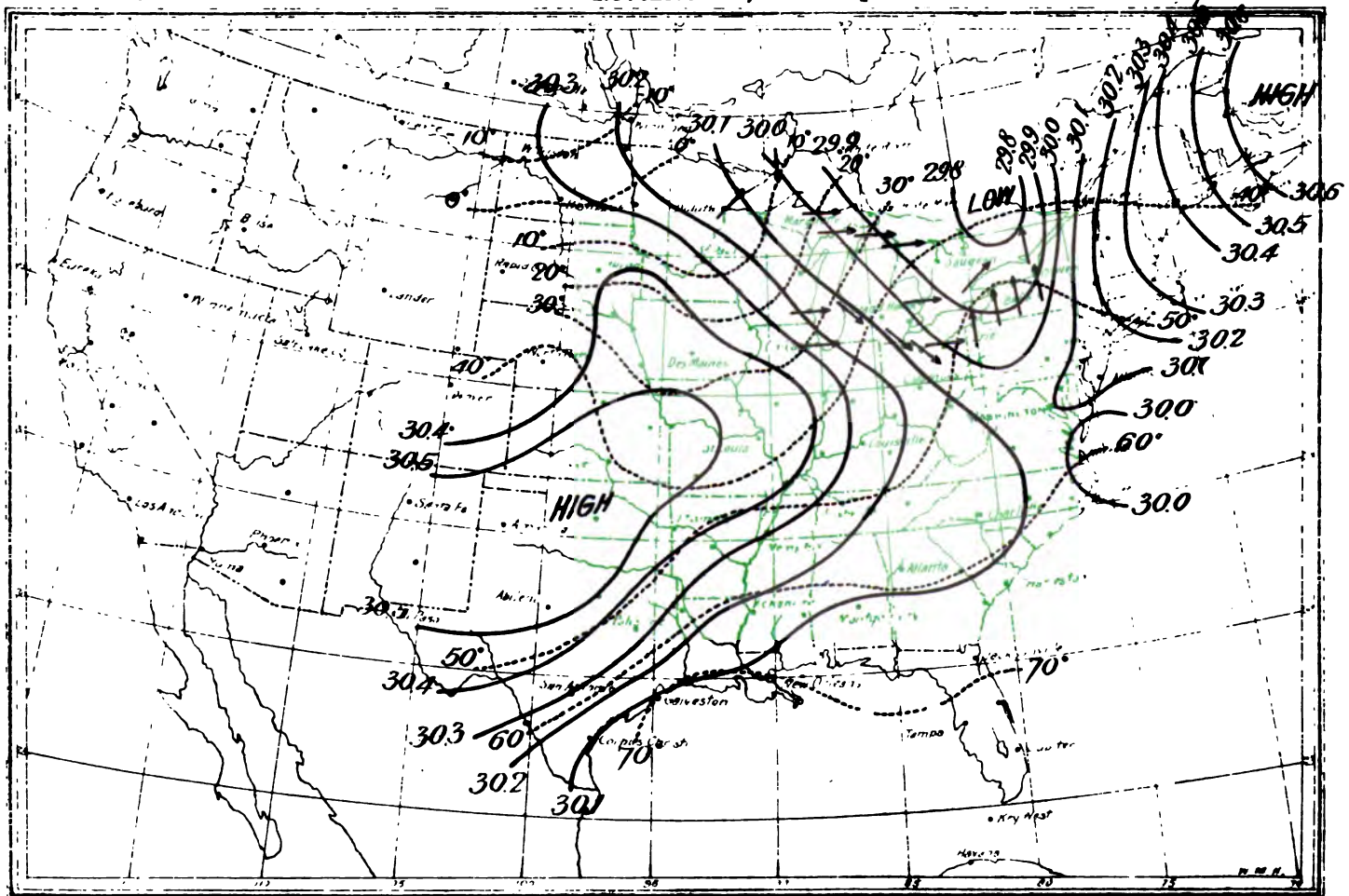


Chart DCOV.

November 3, 1884—7 a. m.

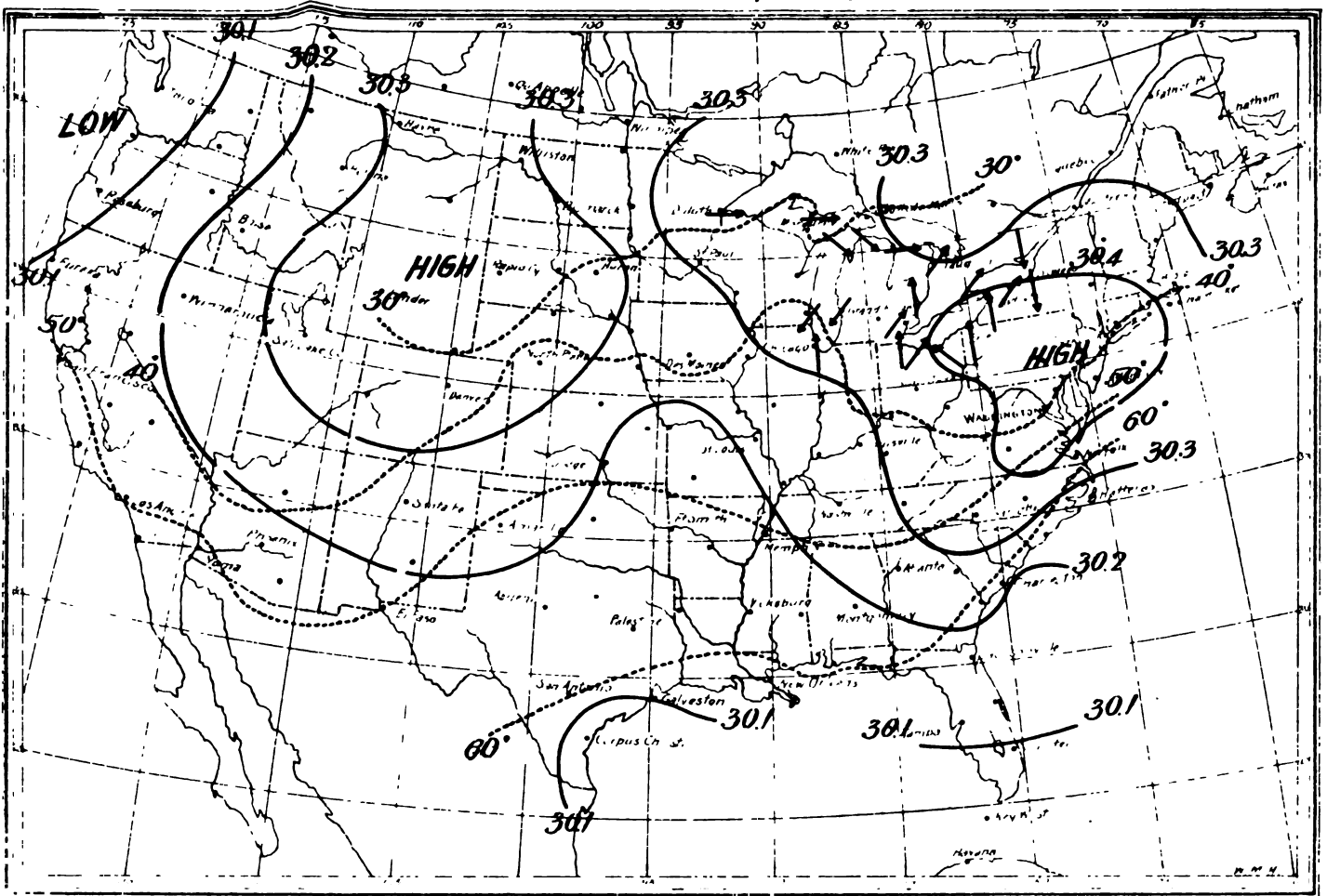


Chart DCOVI.

November 3, 1884—3 p. m.

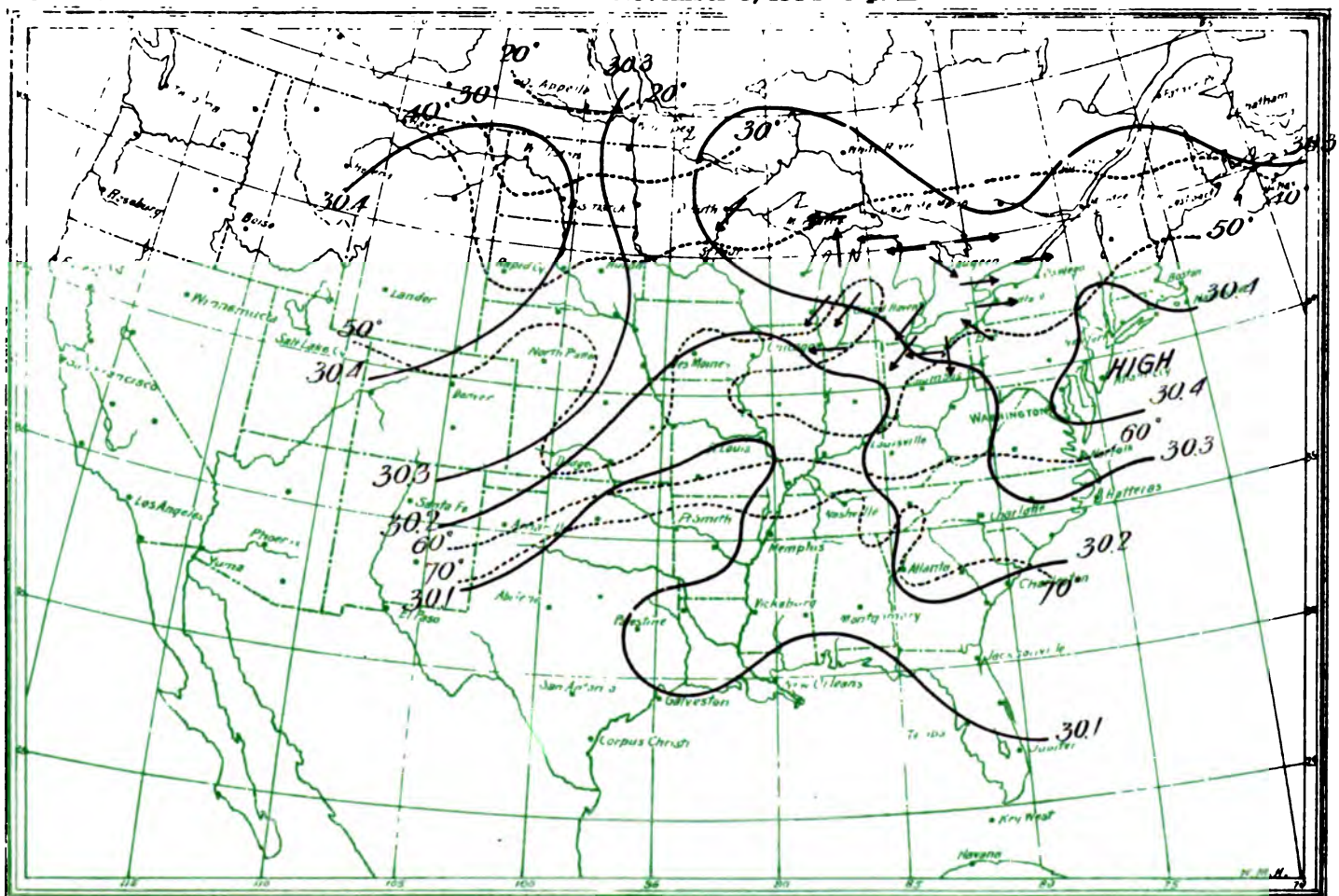


Chart DCOVII.

November 4, 1884—7 a. m.

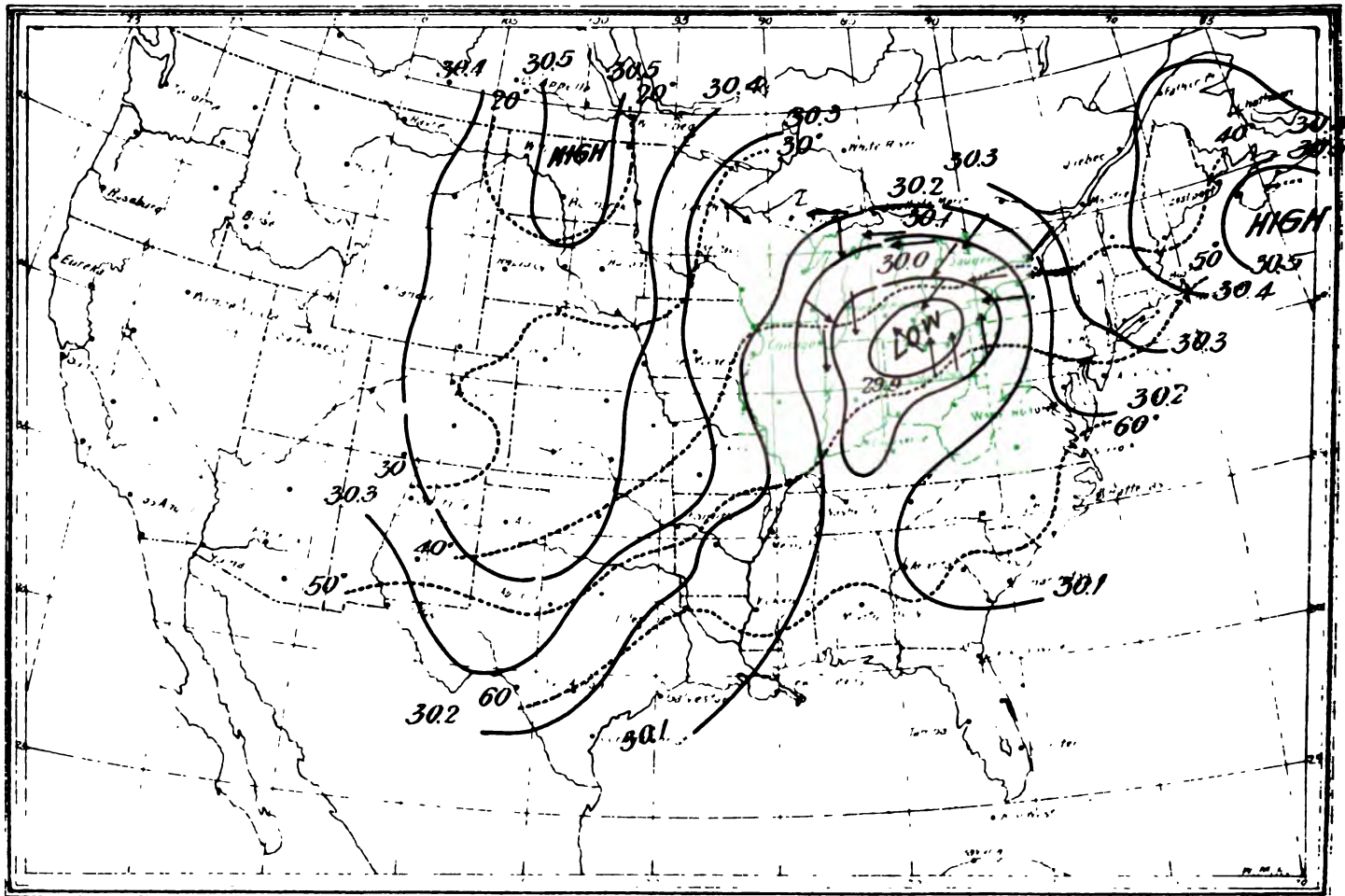


Chart DCOVIII.

November 4, 1884—3 p. m.

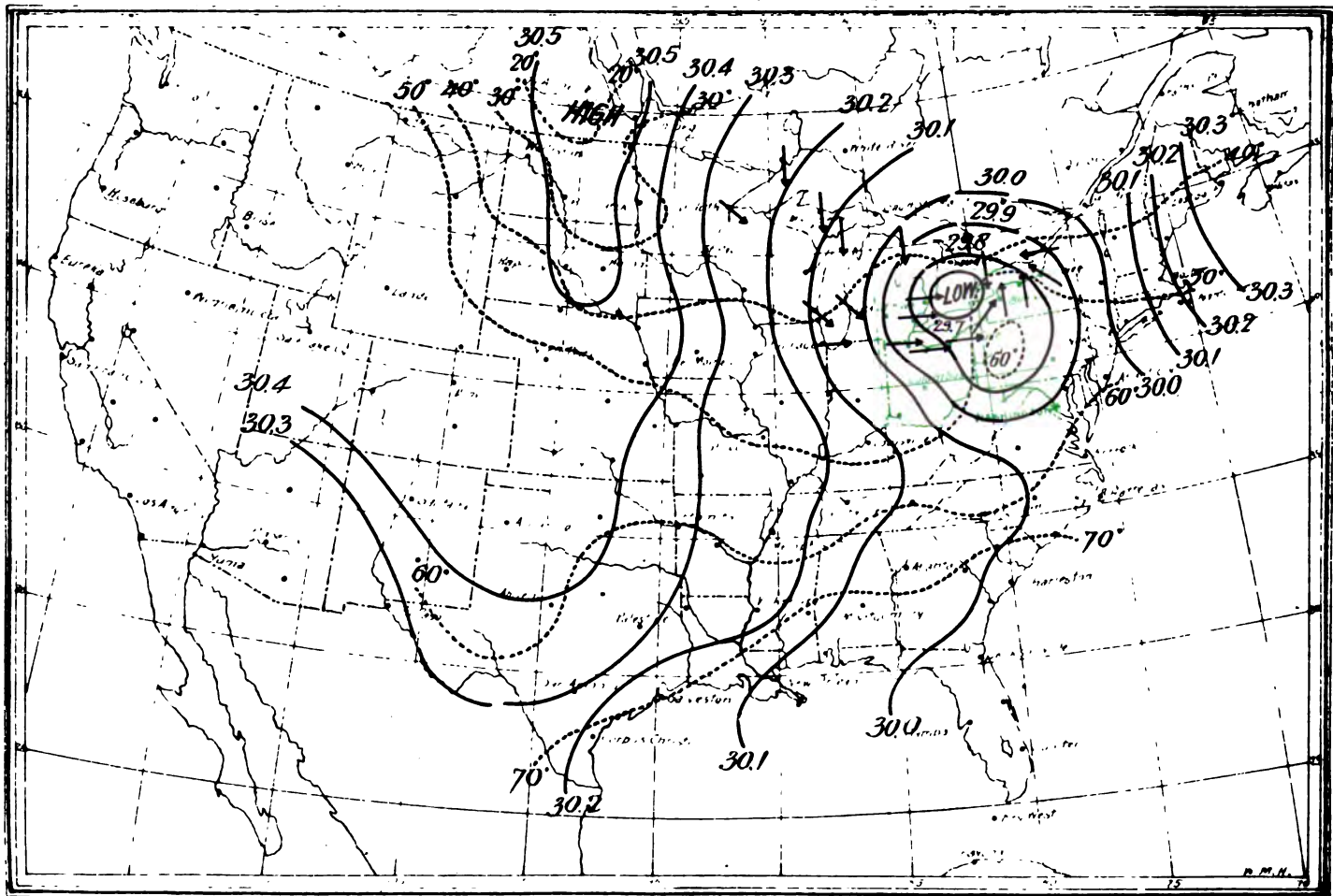


Chart DCCIX.

November 22, 1884—7 a. m.

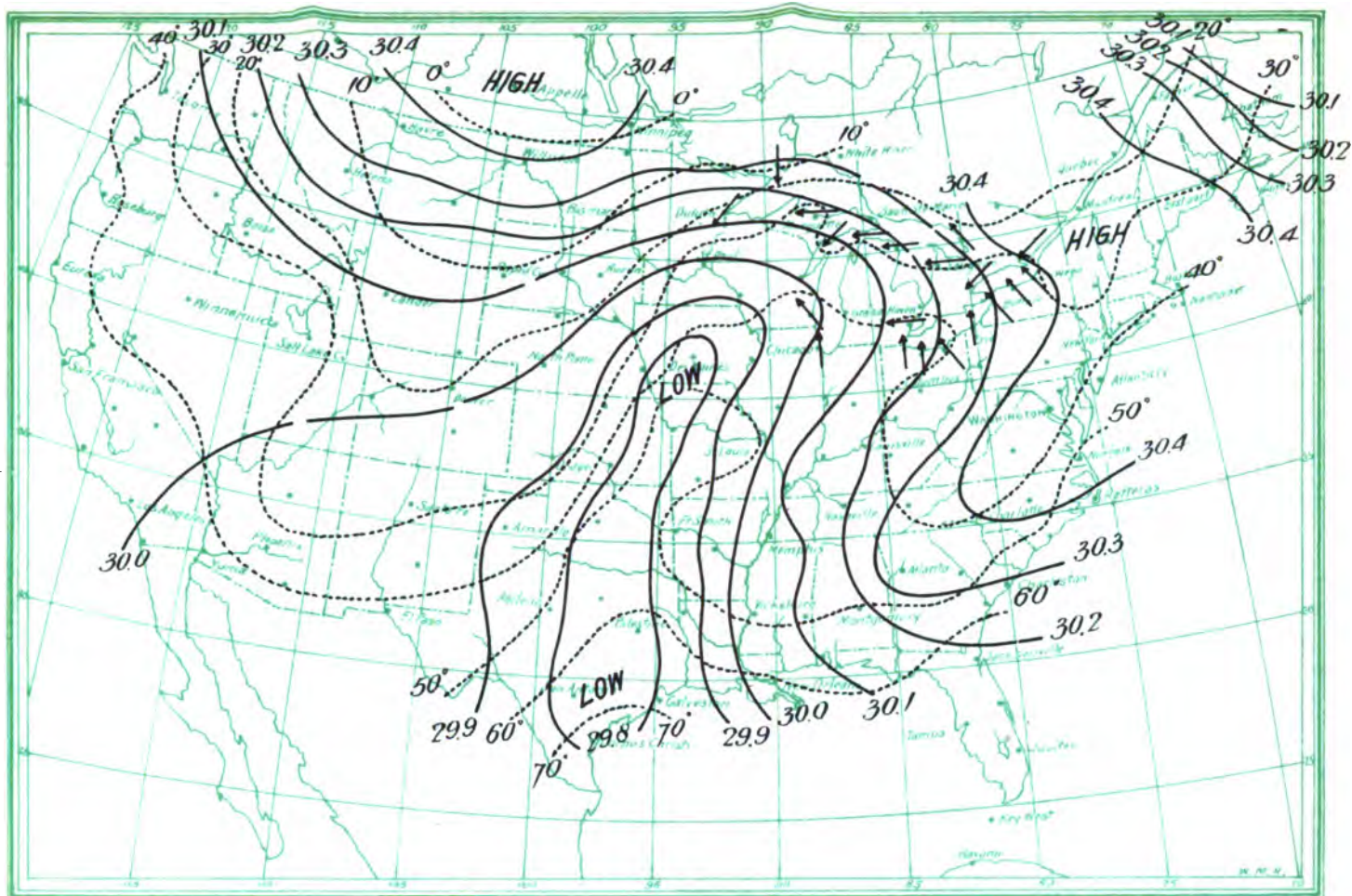


Chart DCCX.

November 22, 1884—3 p. m.

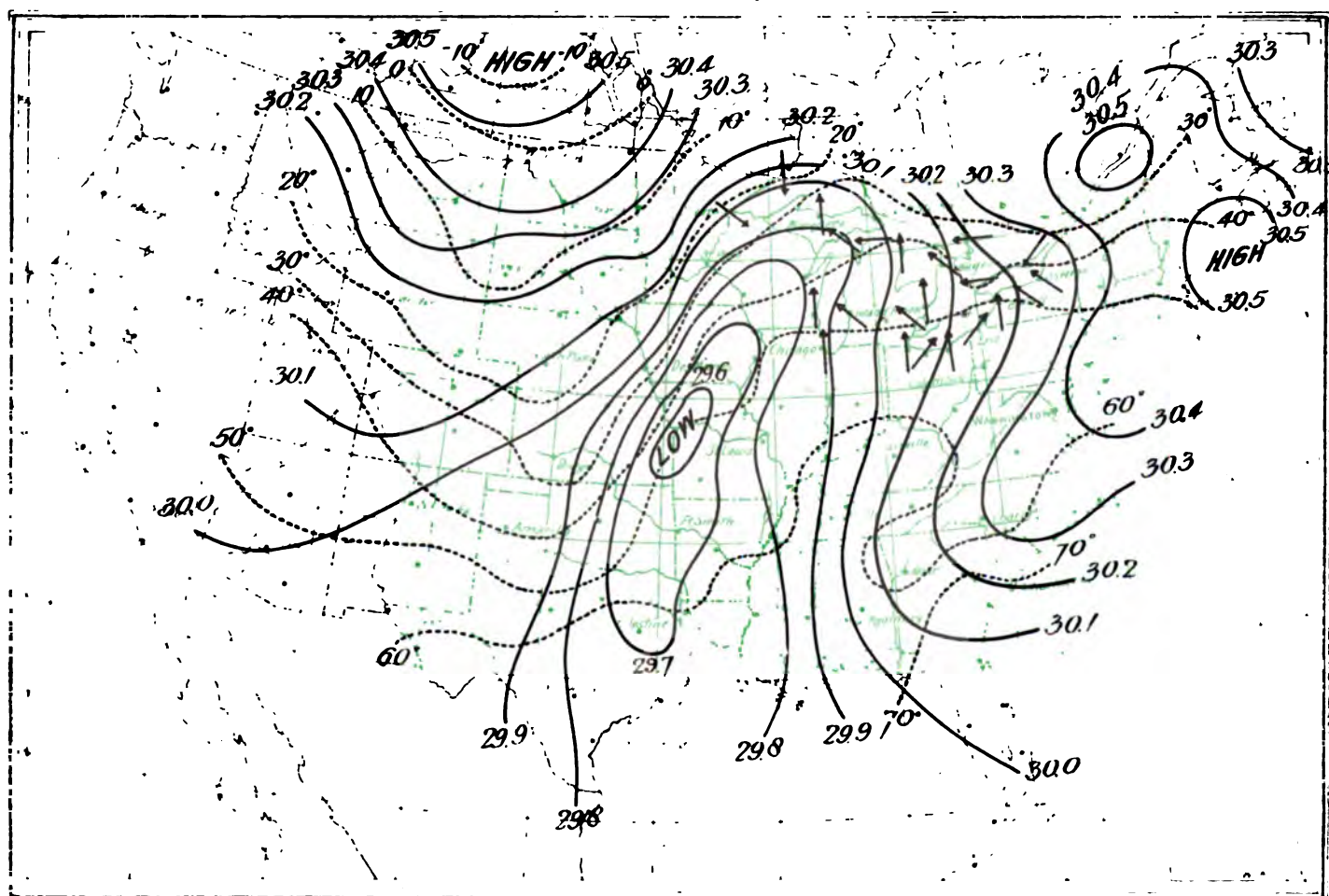


Chart DOOXI.

November 23, 1884—7 a. m.

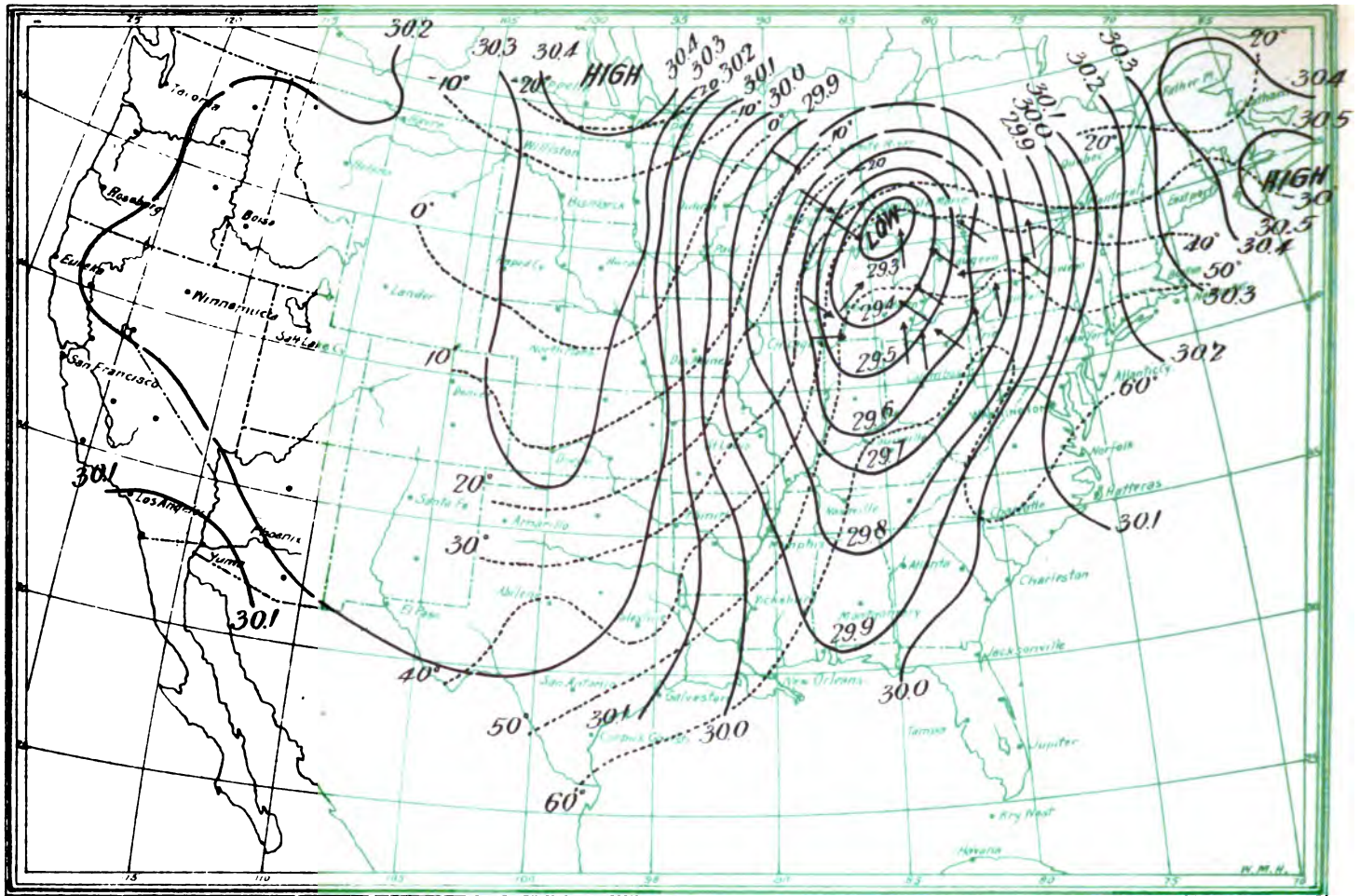


Chart DOOXII.

November 23, 1884—3 p. m.

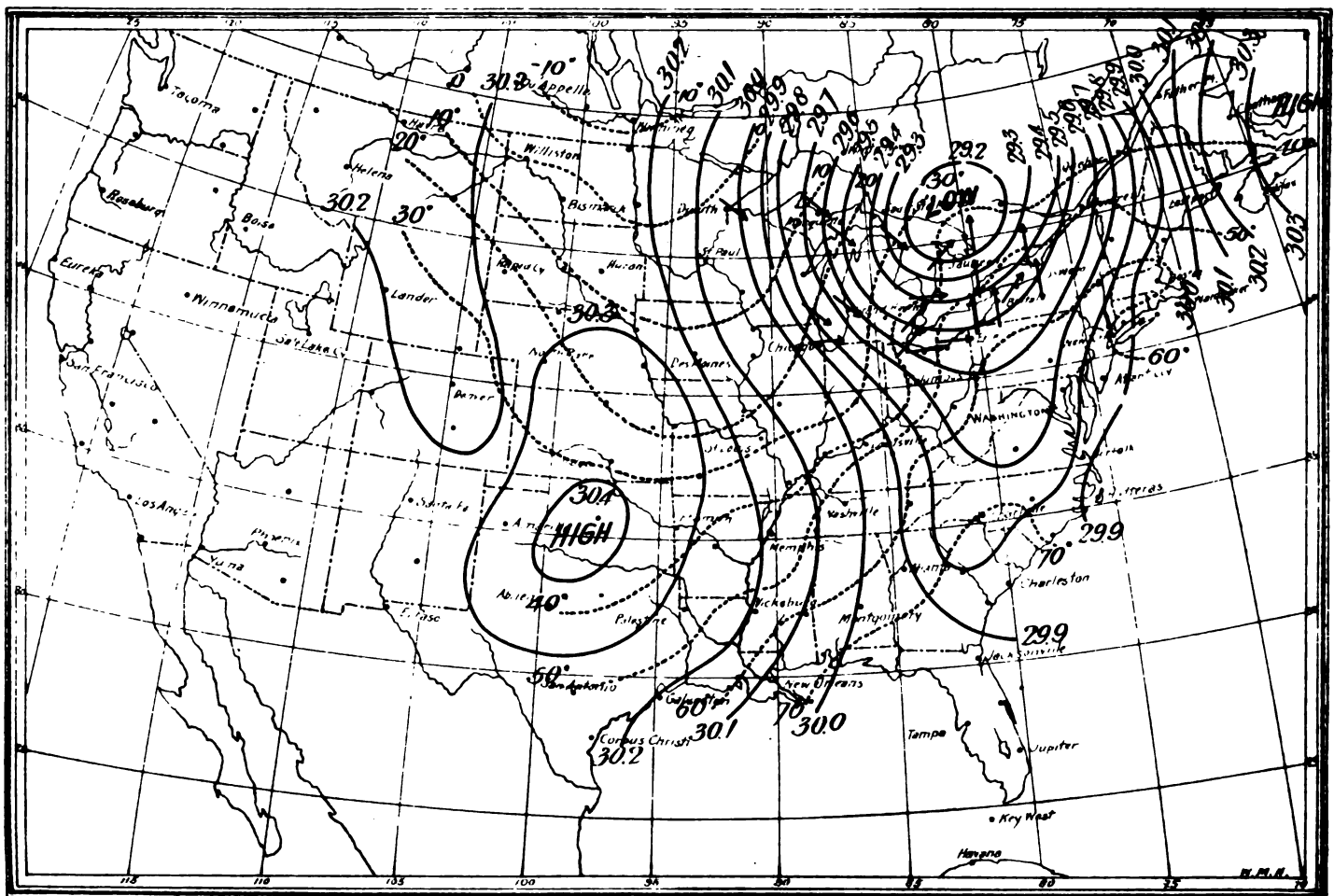


Chart DOOXIII.

November 6, 1885—7 a. m.

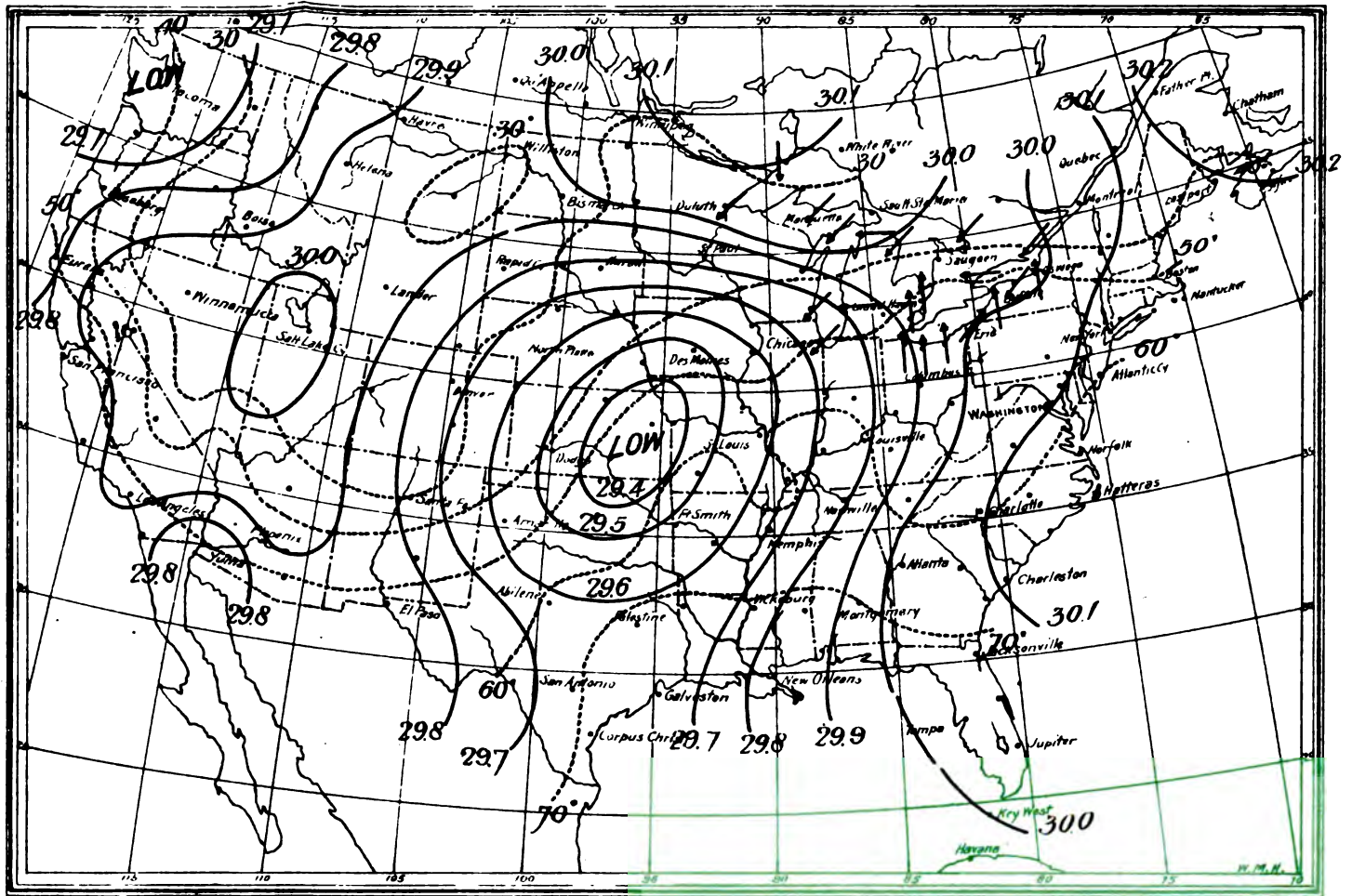


Chart DOOXIV.

November 6, 1885—3 p. m.

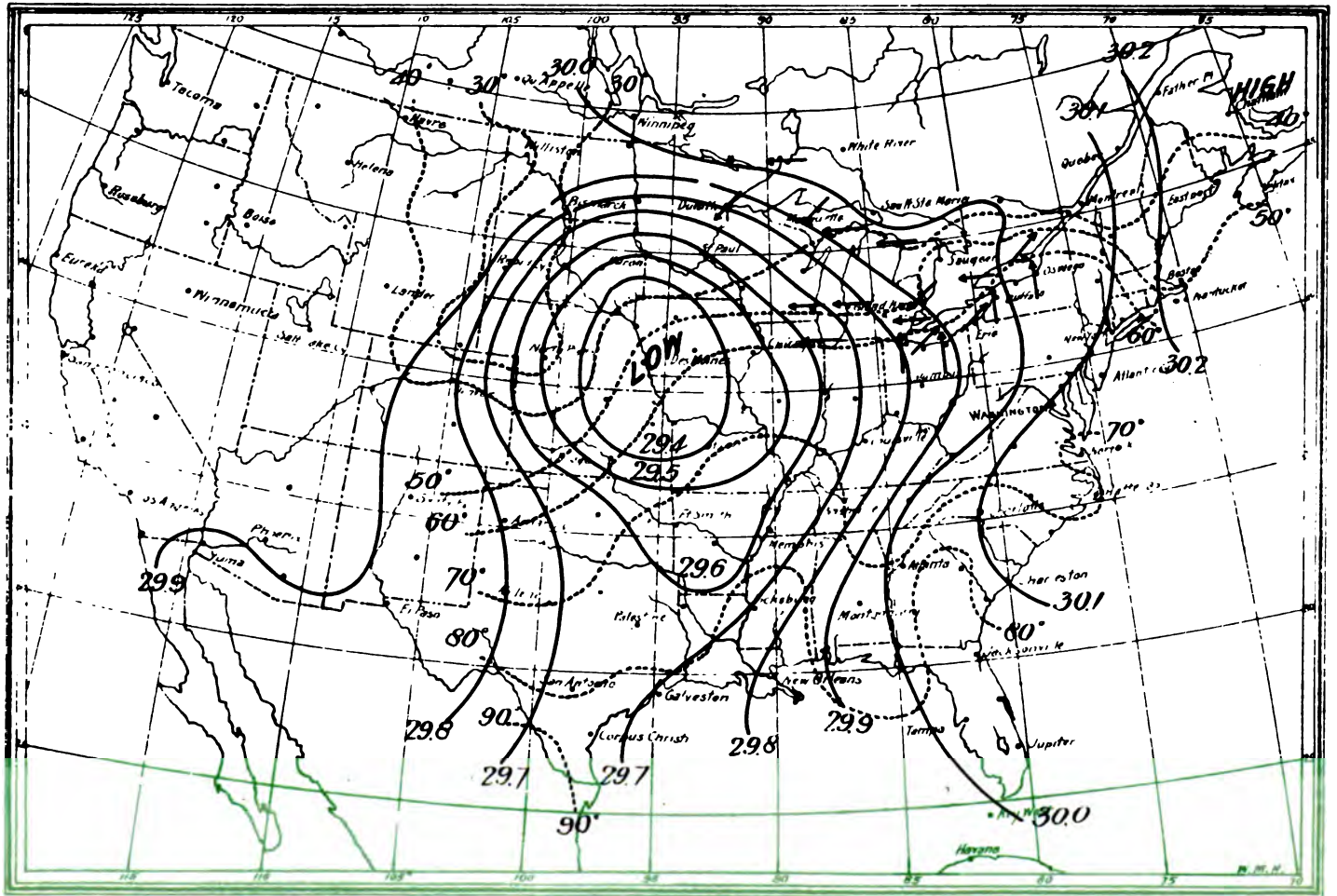


Chart DCCXV.

November 7, 1885—7 a. m.

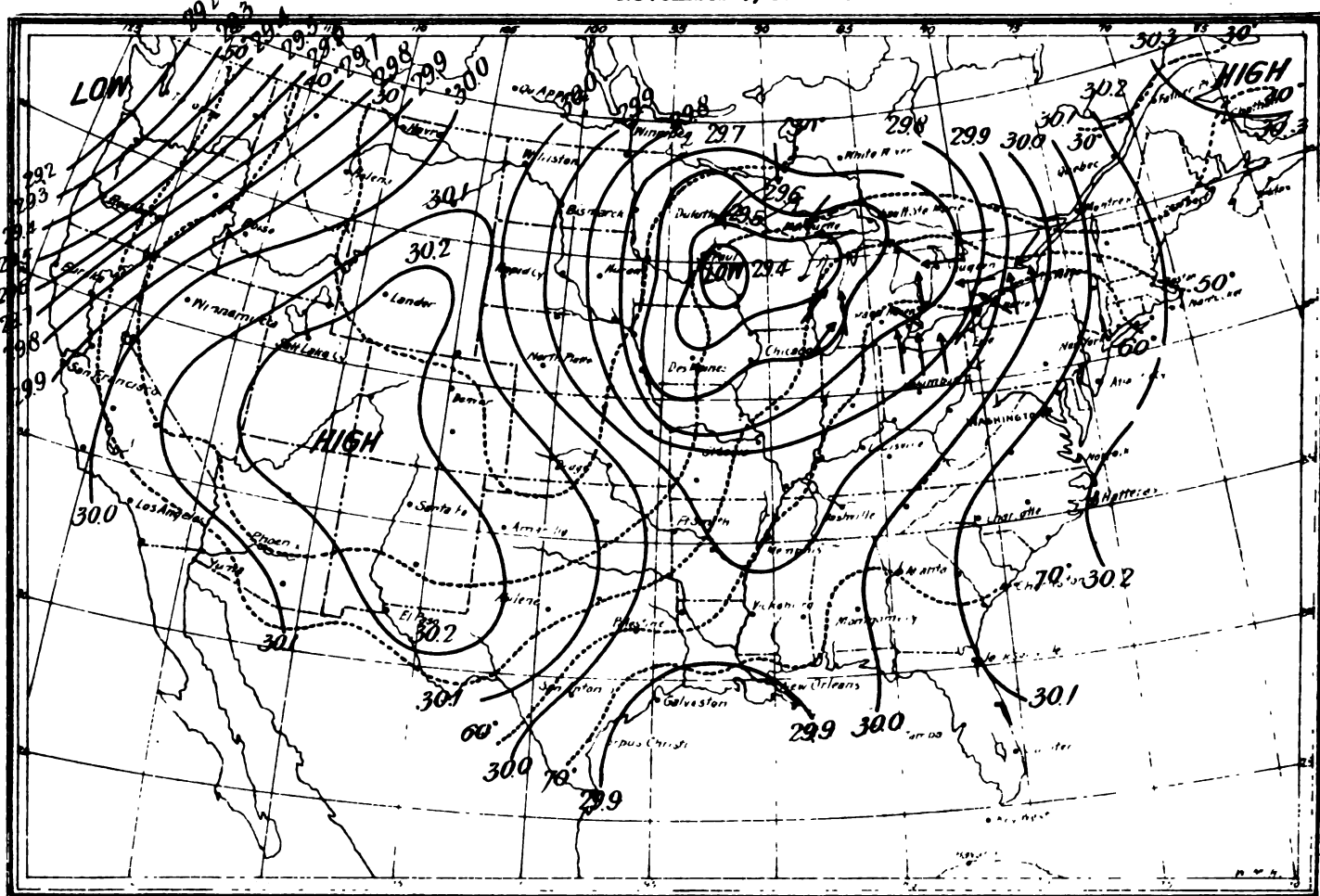


Chart DCCXVI.

November 7, 1885—3 p. m.

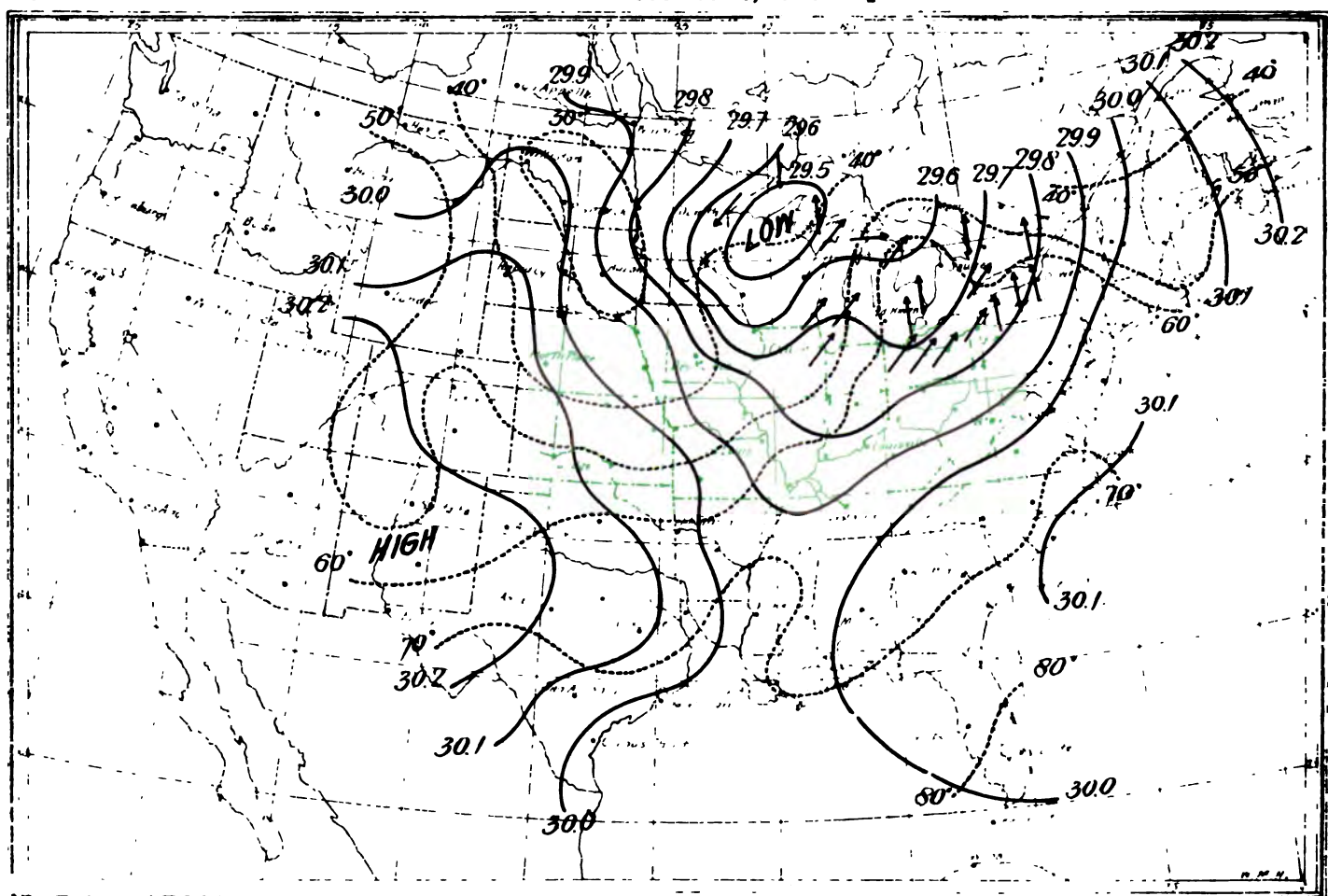


Chart DCOXVII.

November 11, 1885—7 a. m.

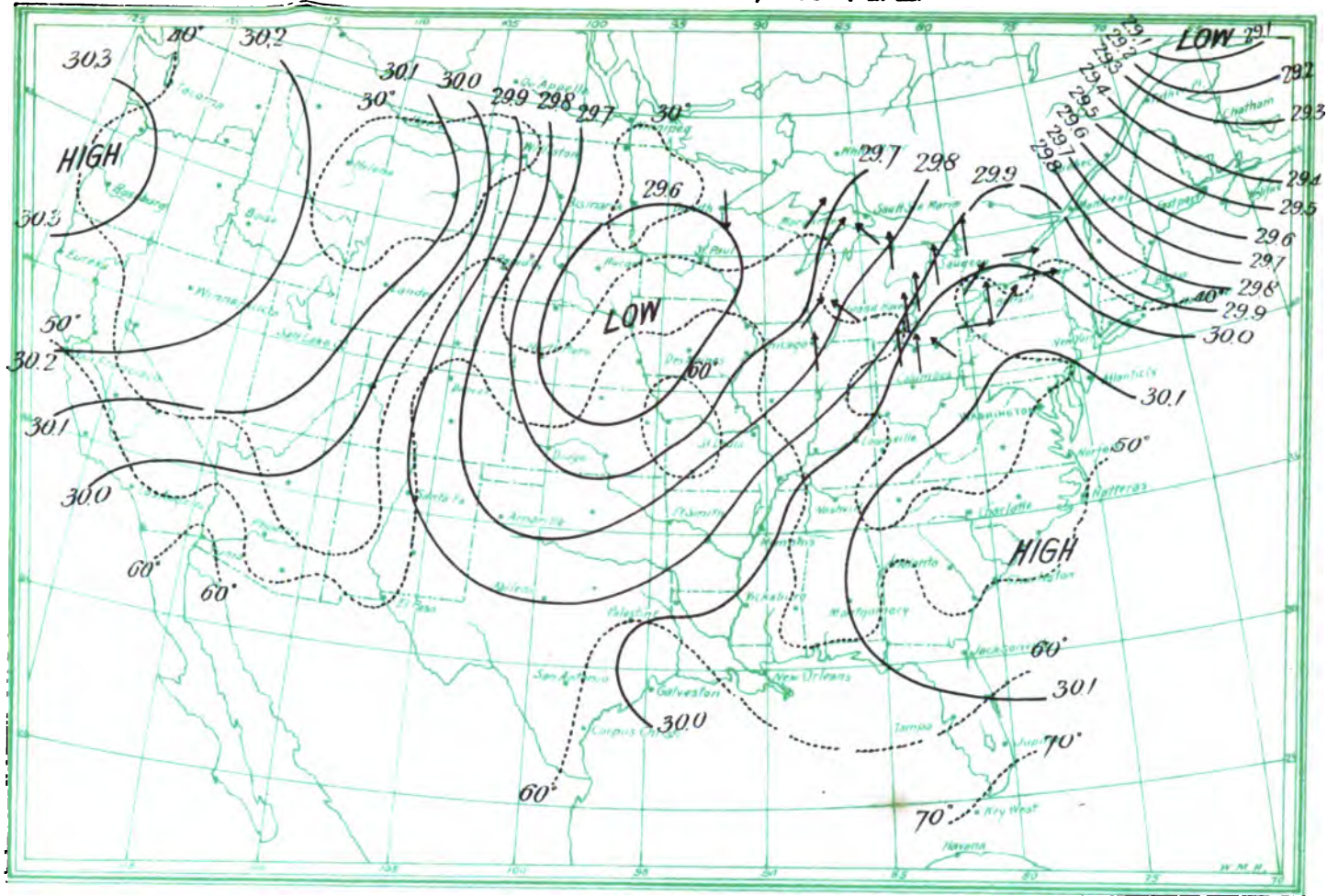


Chart DCOXVIII.

November 11, 1885—3 p. m.

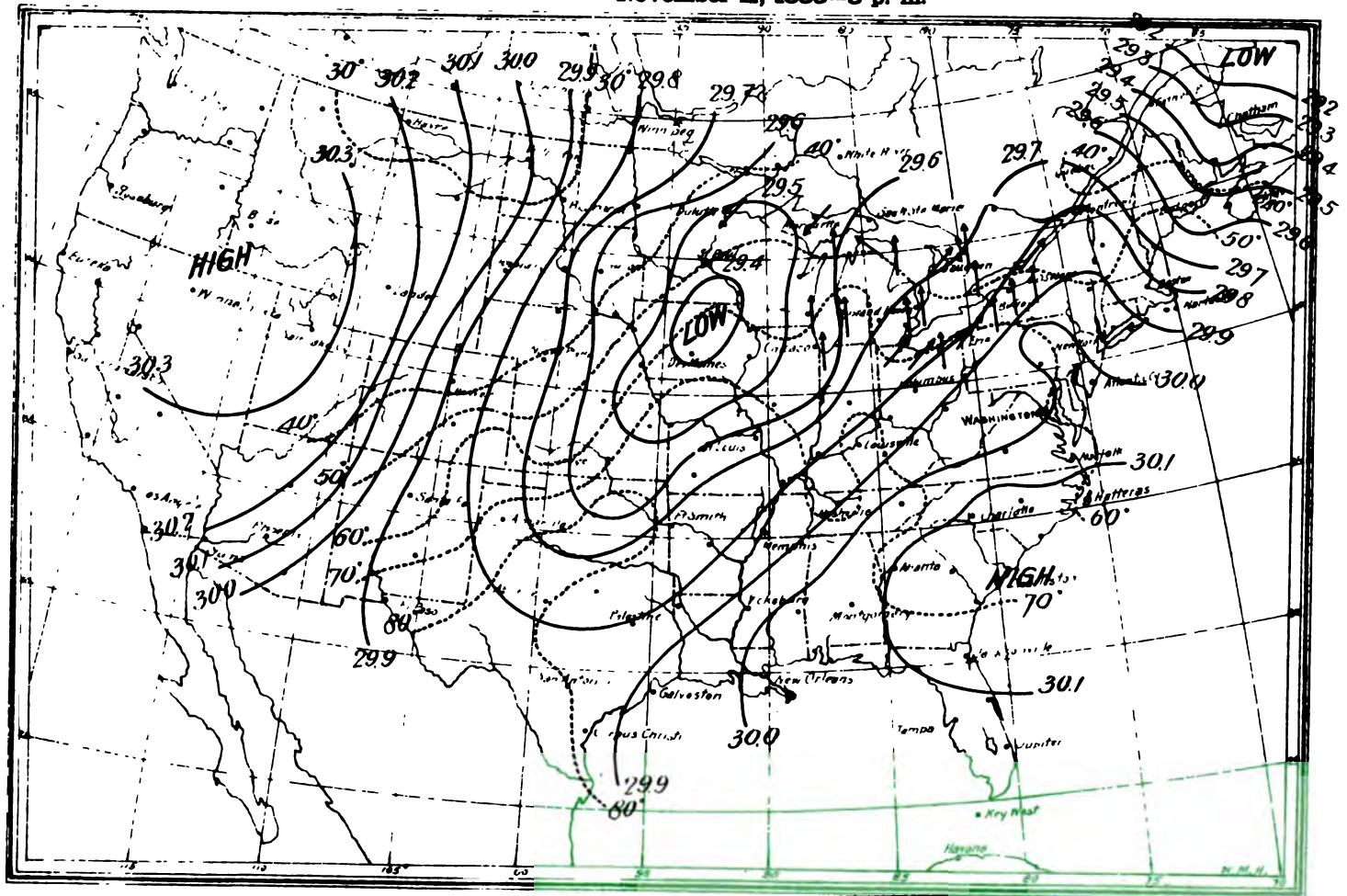


Chart DOOXIX.

November 12, 1885—7 a. m.

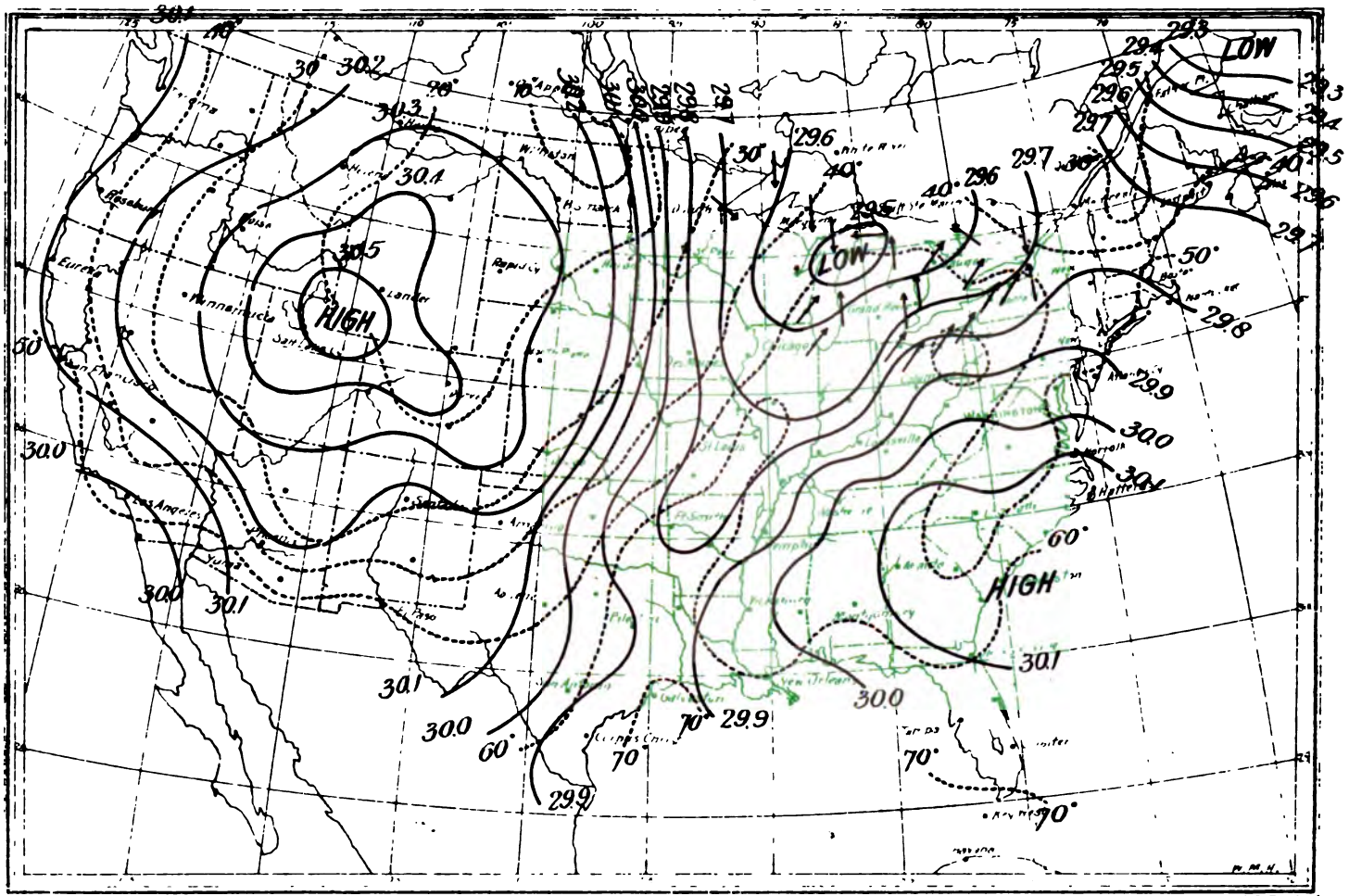


Chart DOOXX.

November 12, 1885—3 p. m.

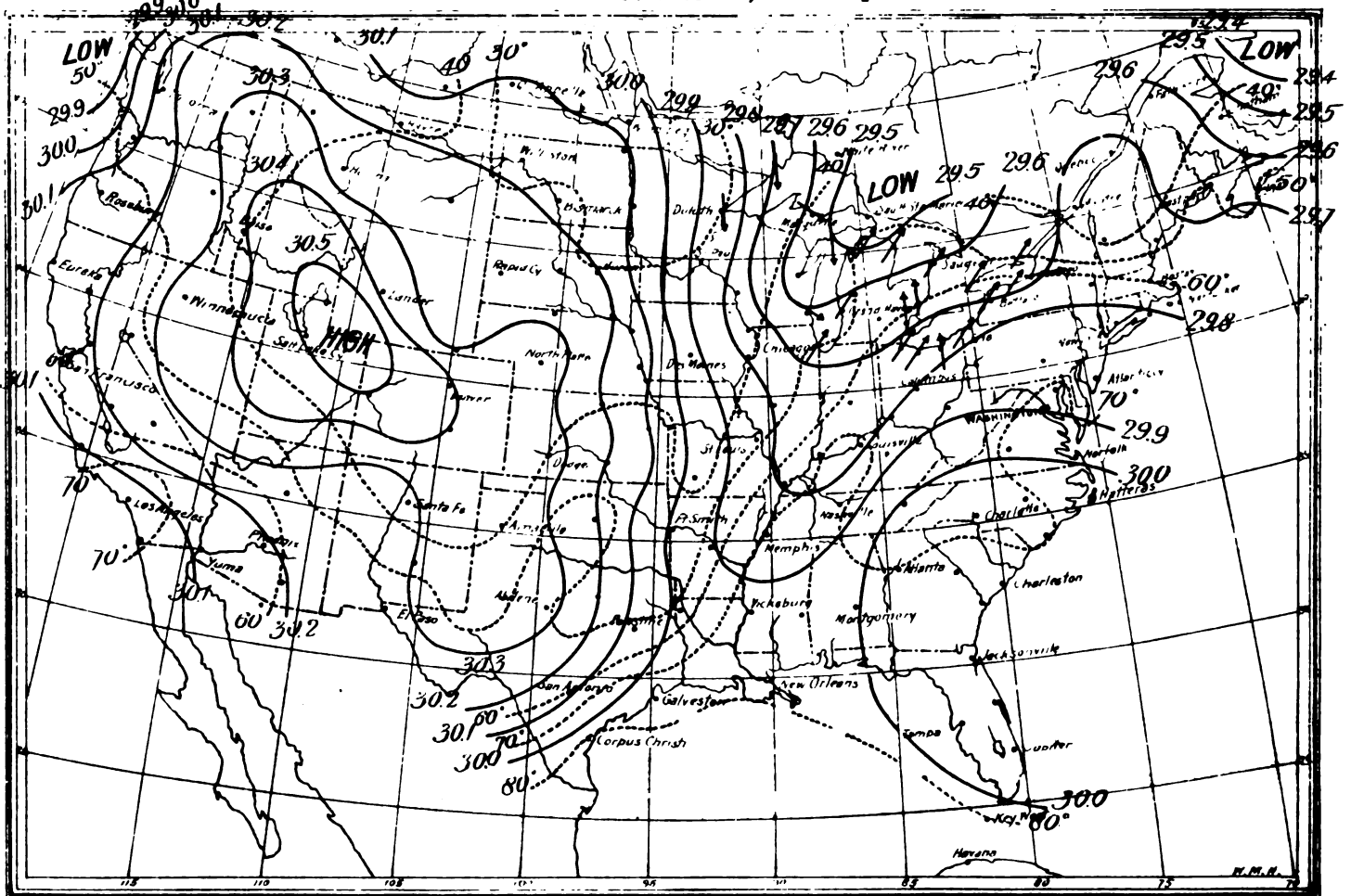


Chart DCCXXI.

November 16, 1886—8 p. m.

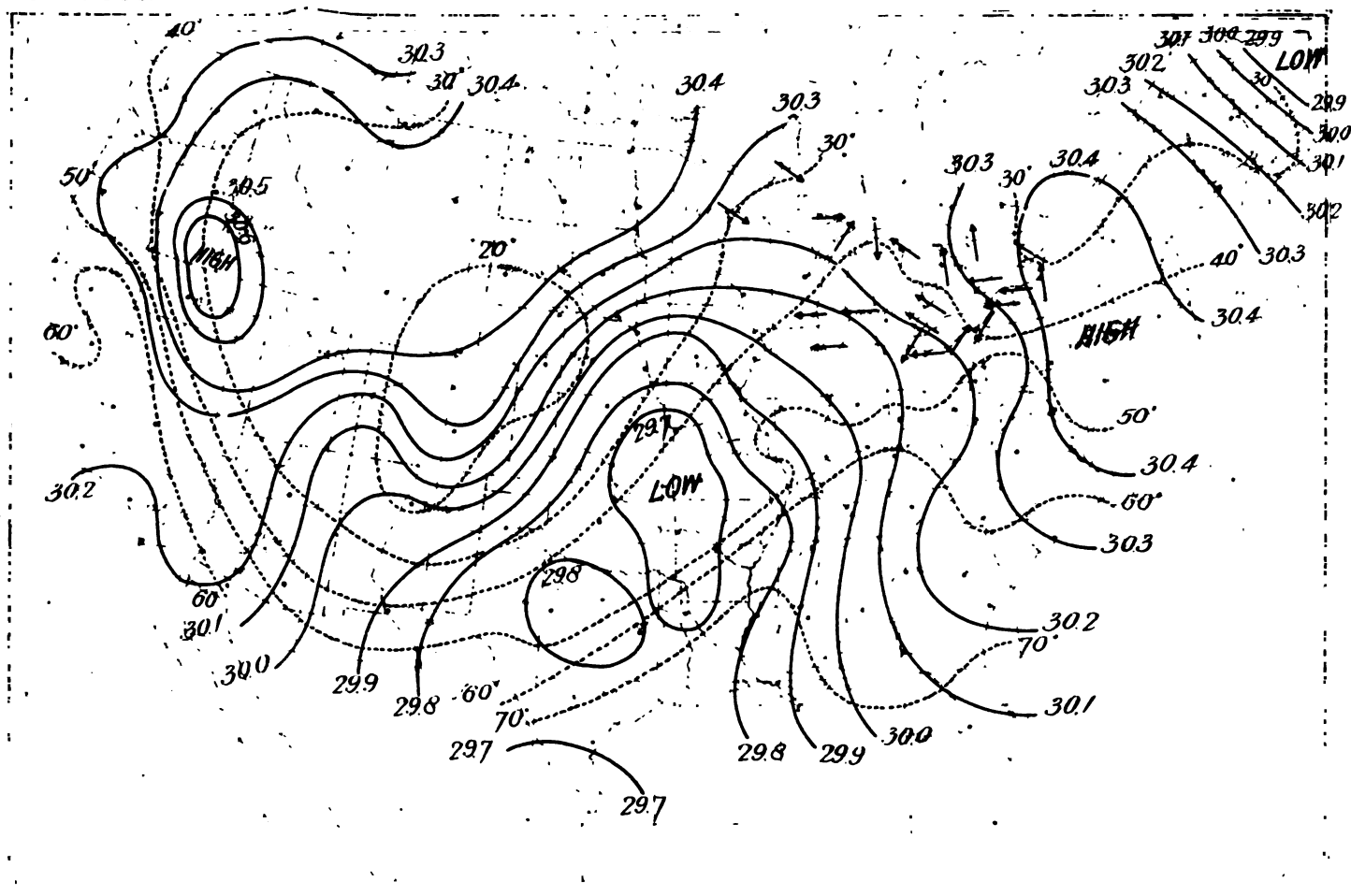


Chart DCCXXII.

November 17, 1886—7 a. m.

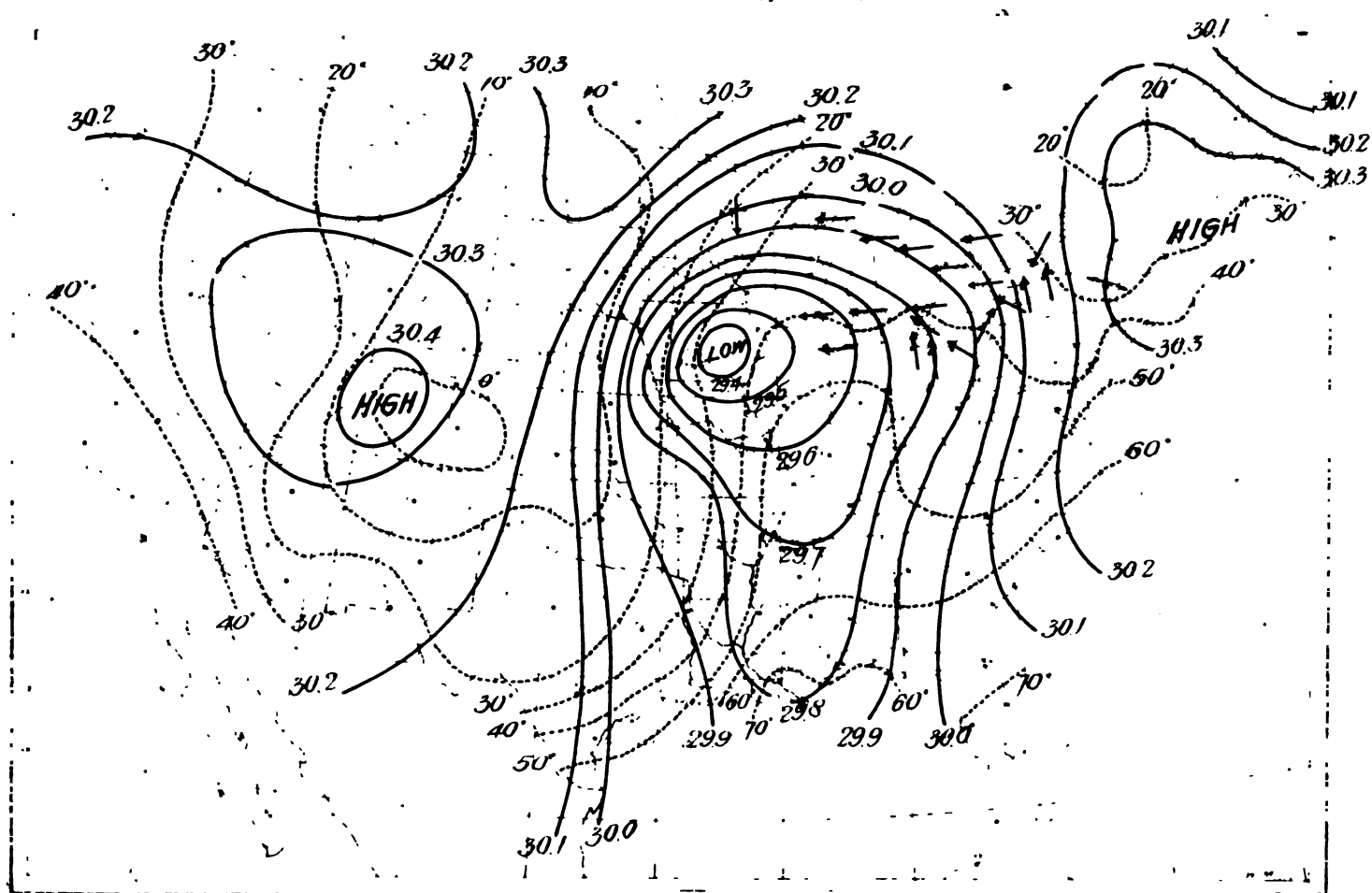


Chart DCOXXIII.

November 17, 1886—3 p. m.

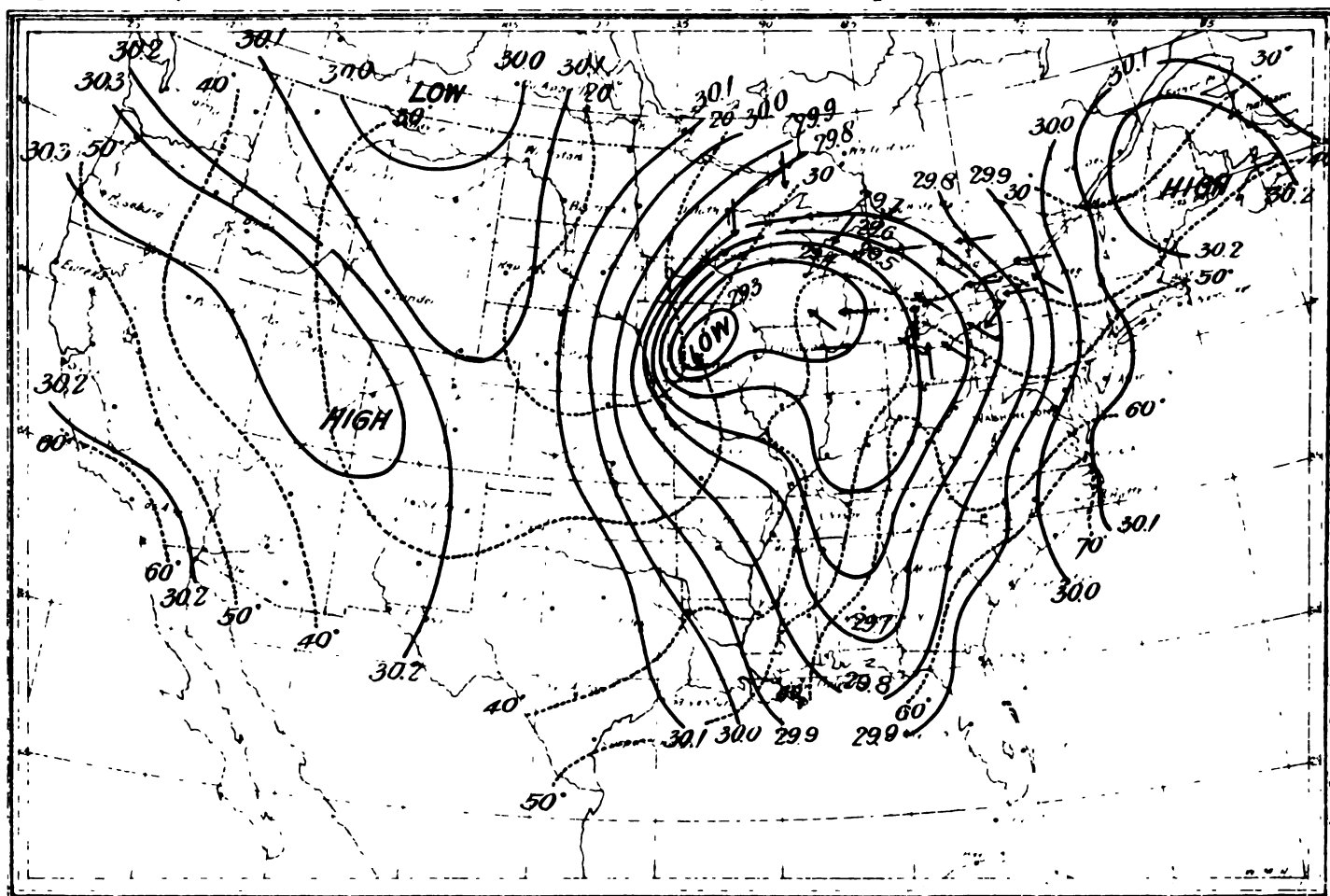


Chart DCOXXIV.

November 18, 1886—7 a. m.

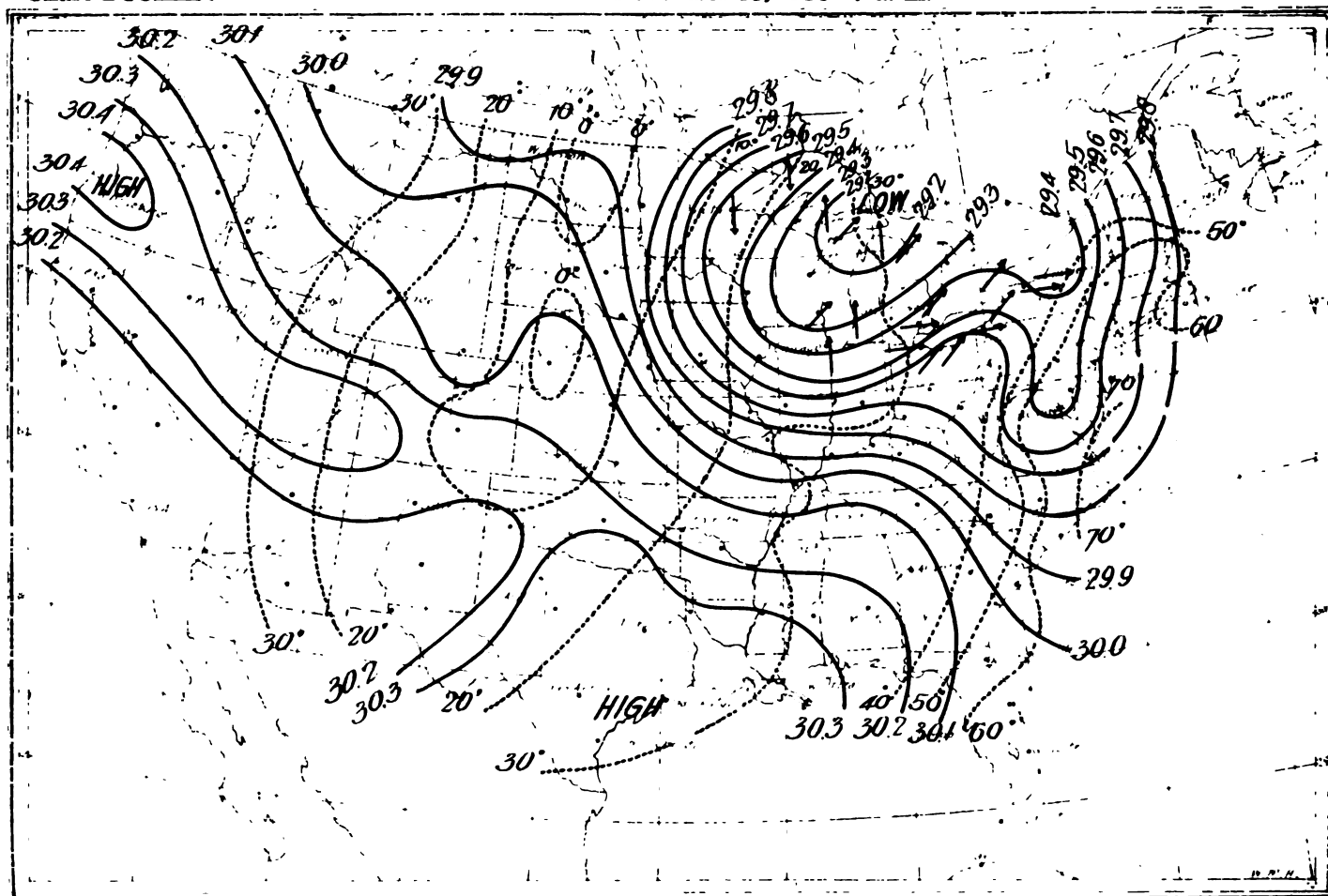


Chart DCOXXV.

November 22, 1886—7 a. m.

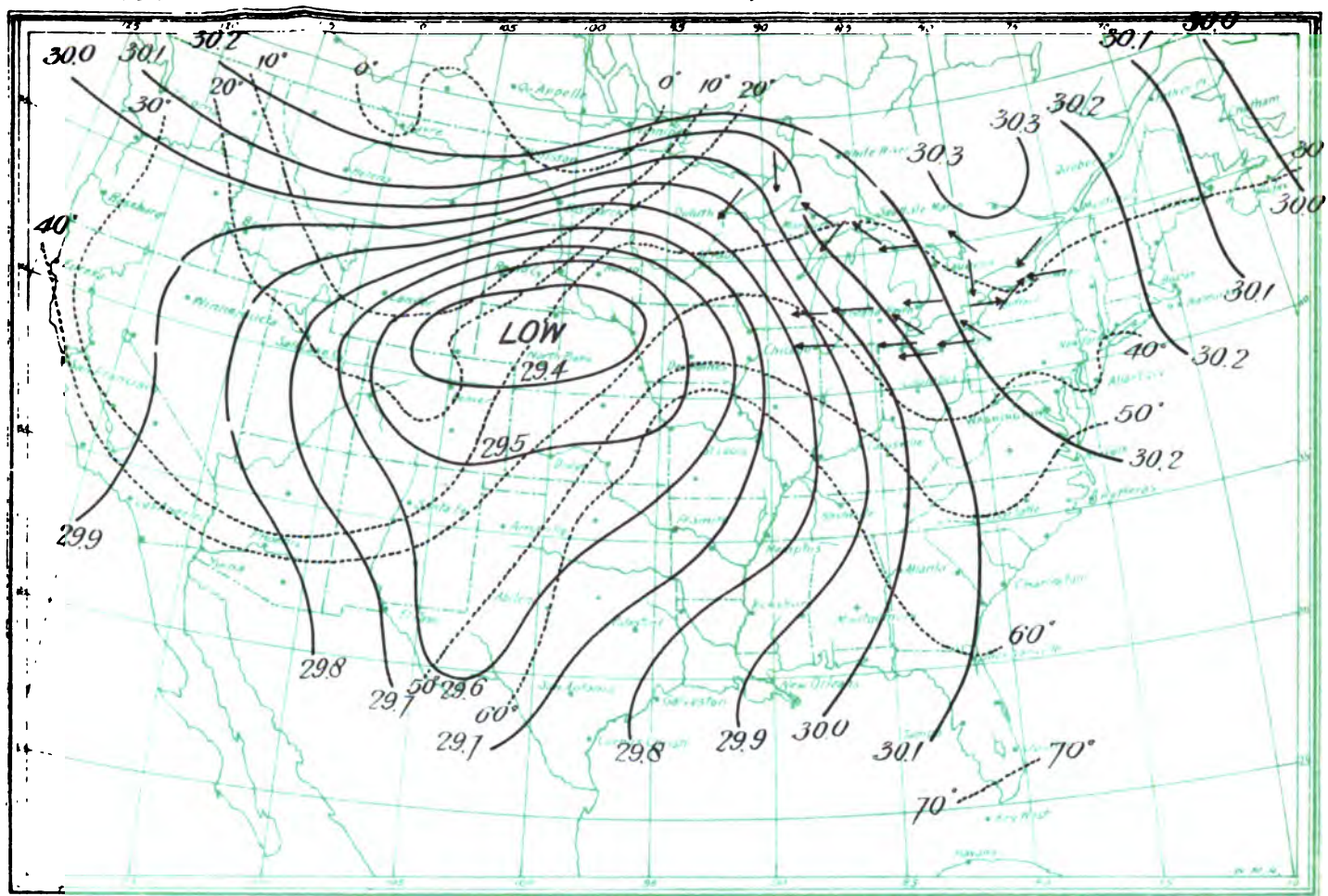


Chart DCOXXVI.

November 22, 1886—3 p. m.

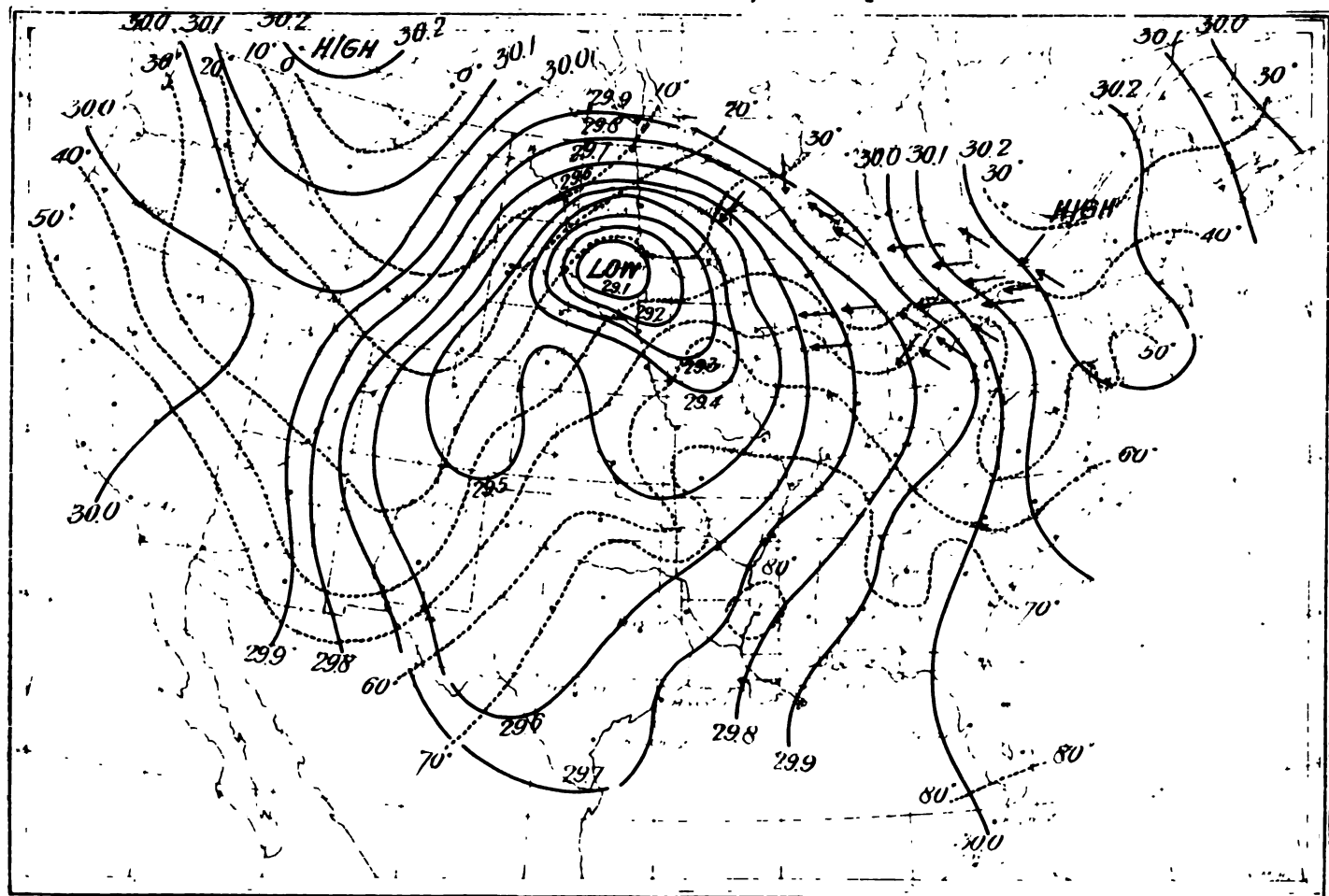


Chart DCCXXIX.

November 18, 1887—7 a. m.

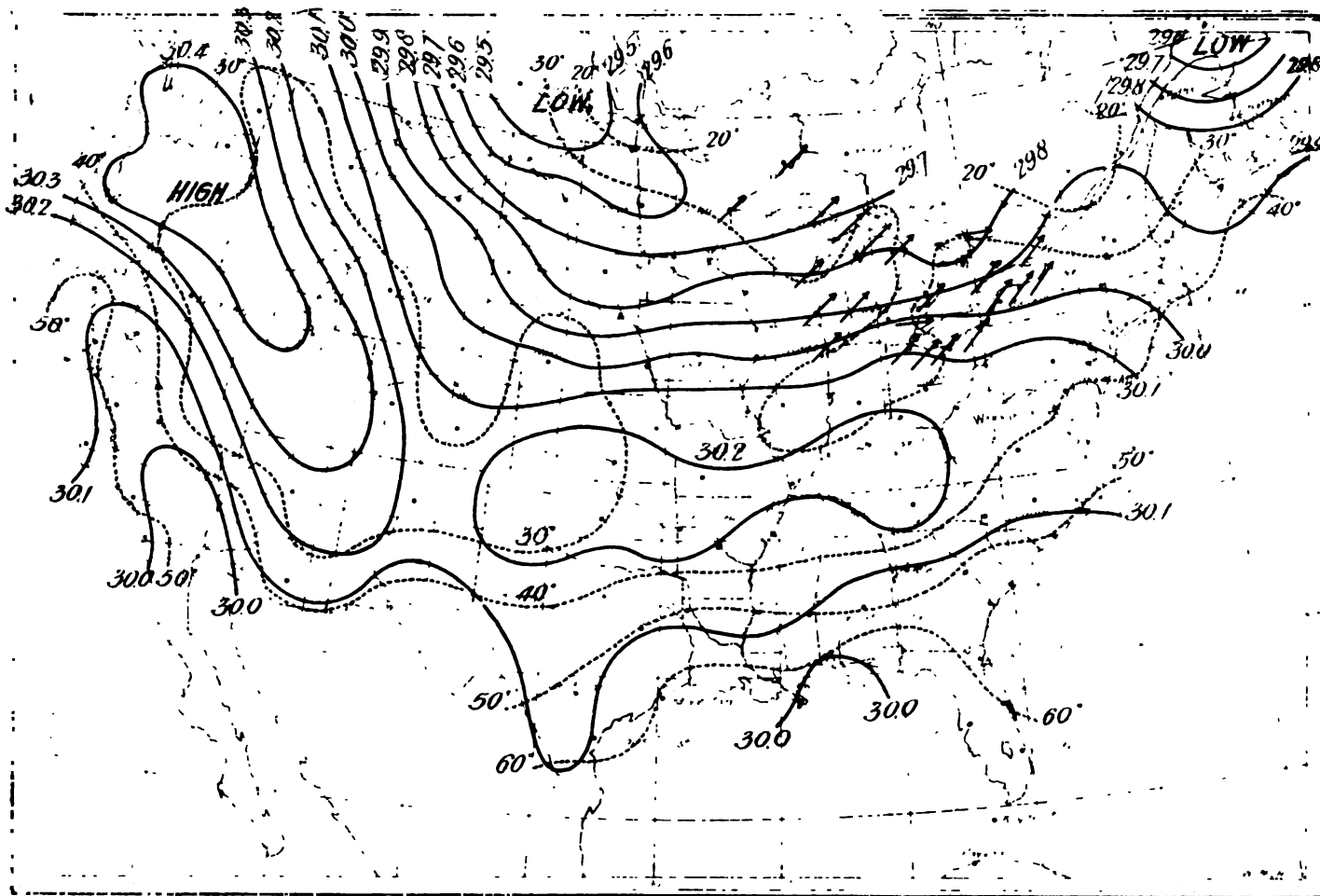


Chart DCCXXX.

November 18, 1887—3 p. m.

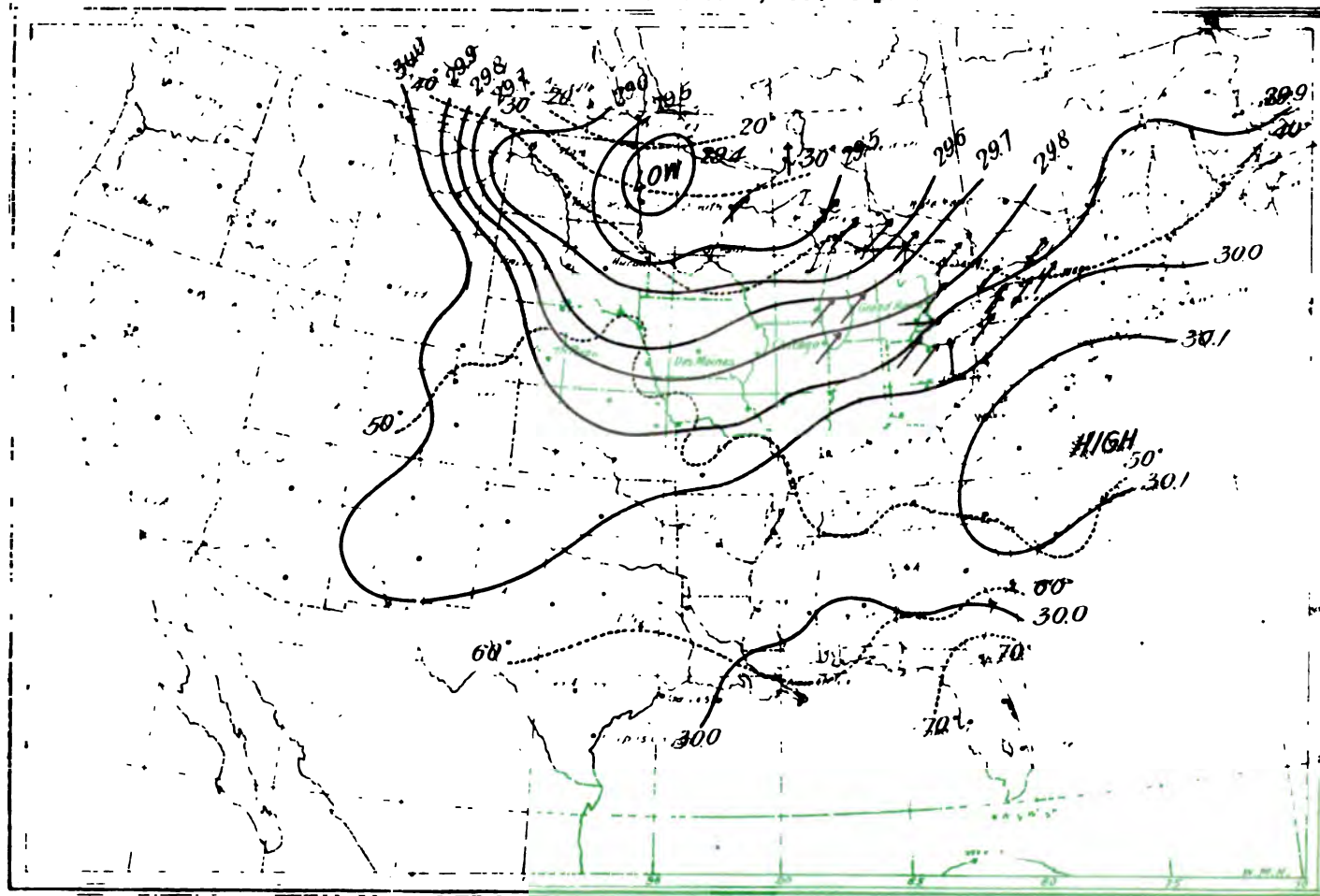


Chart DCOXXXI.

November 19, 1887—7 a. m.

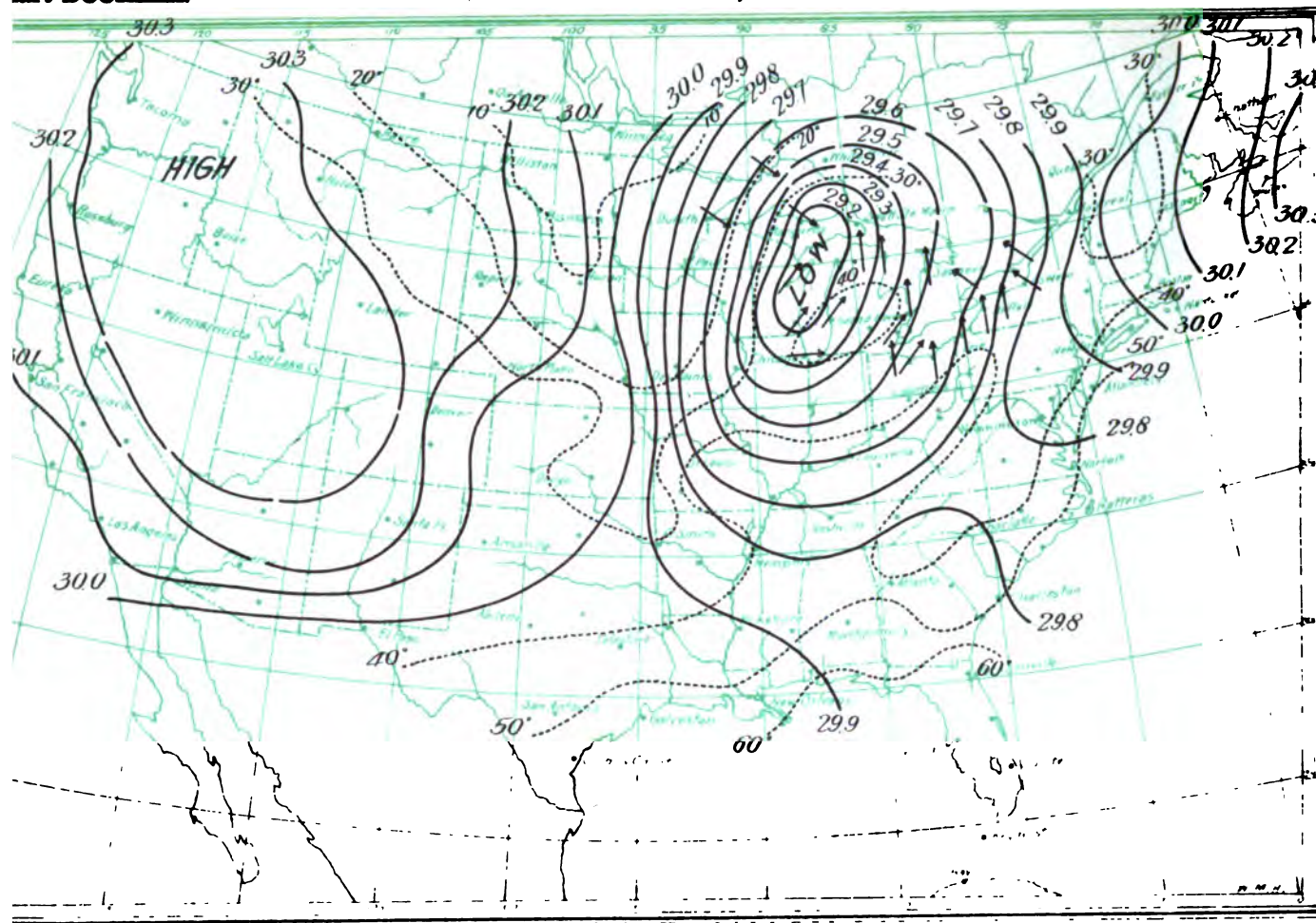


Chart DCOXXXII.

November 19, 1887—3 p. m.

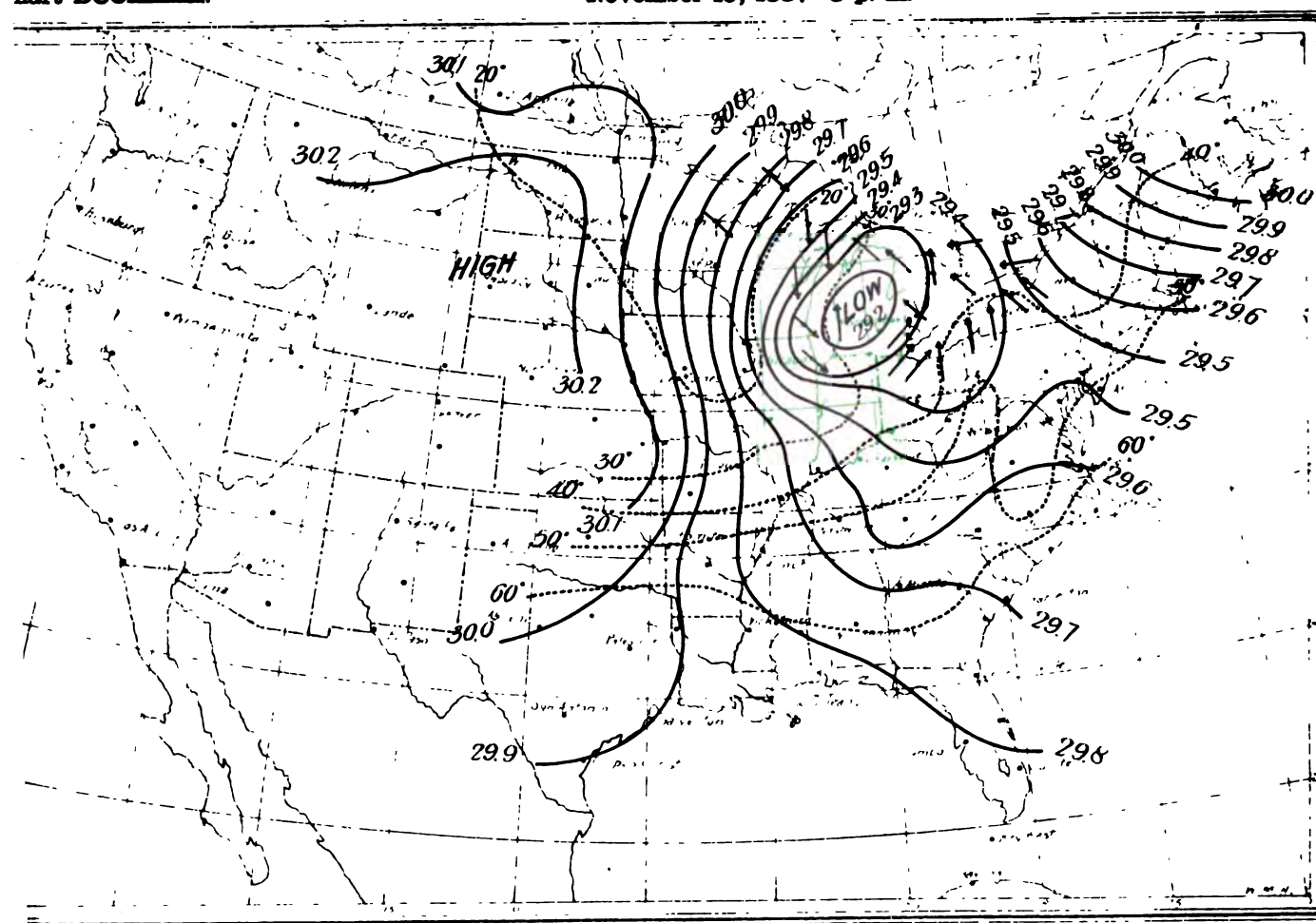


Chart DCOXXXIII.

November 26, 1889—8 a. m.

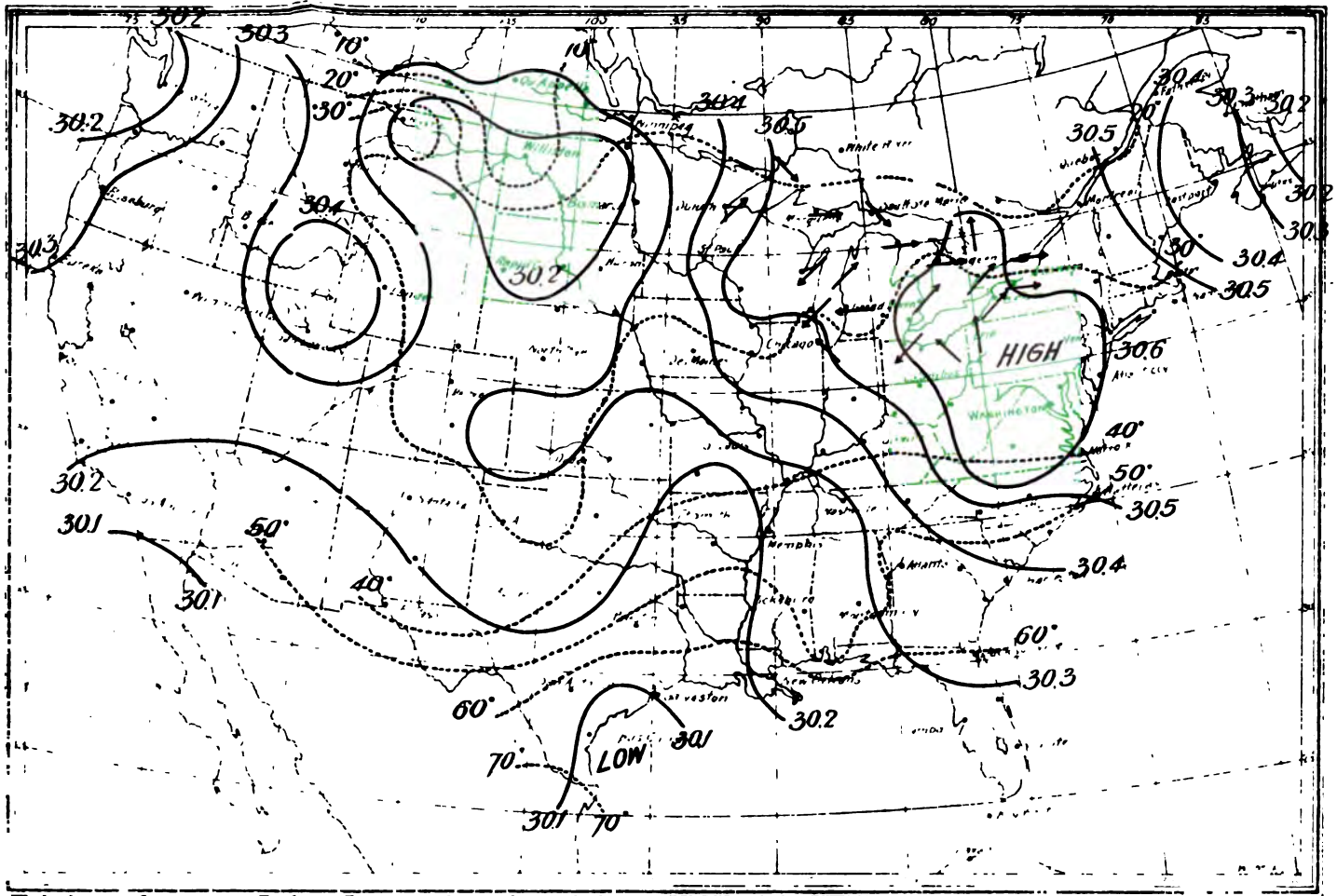


Chart DCOXXXIV.

November 26, 1889—8 p. m.

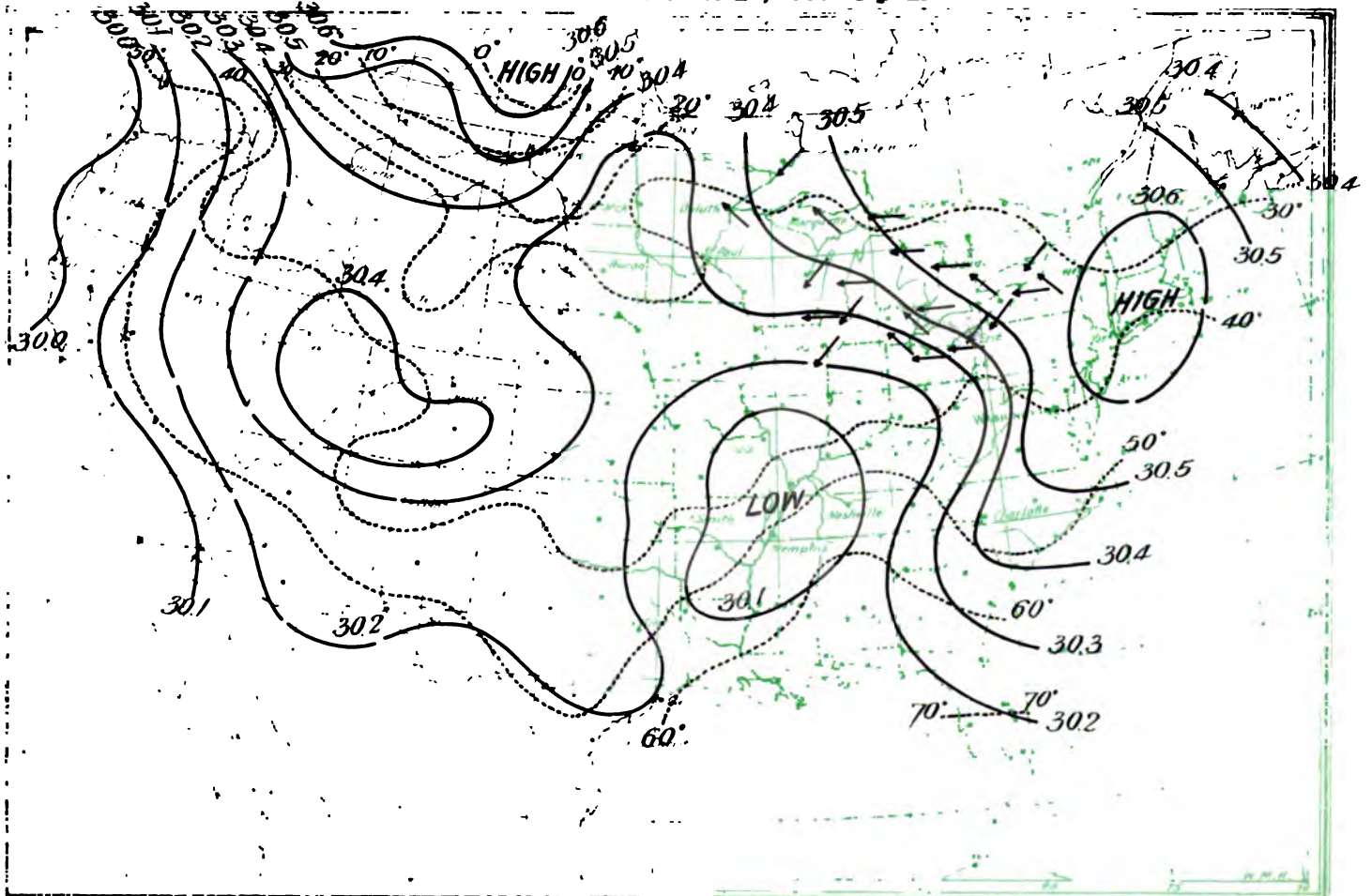


Chart DCCXXXV.

November 27, 1889—8 a. m.

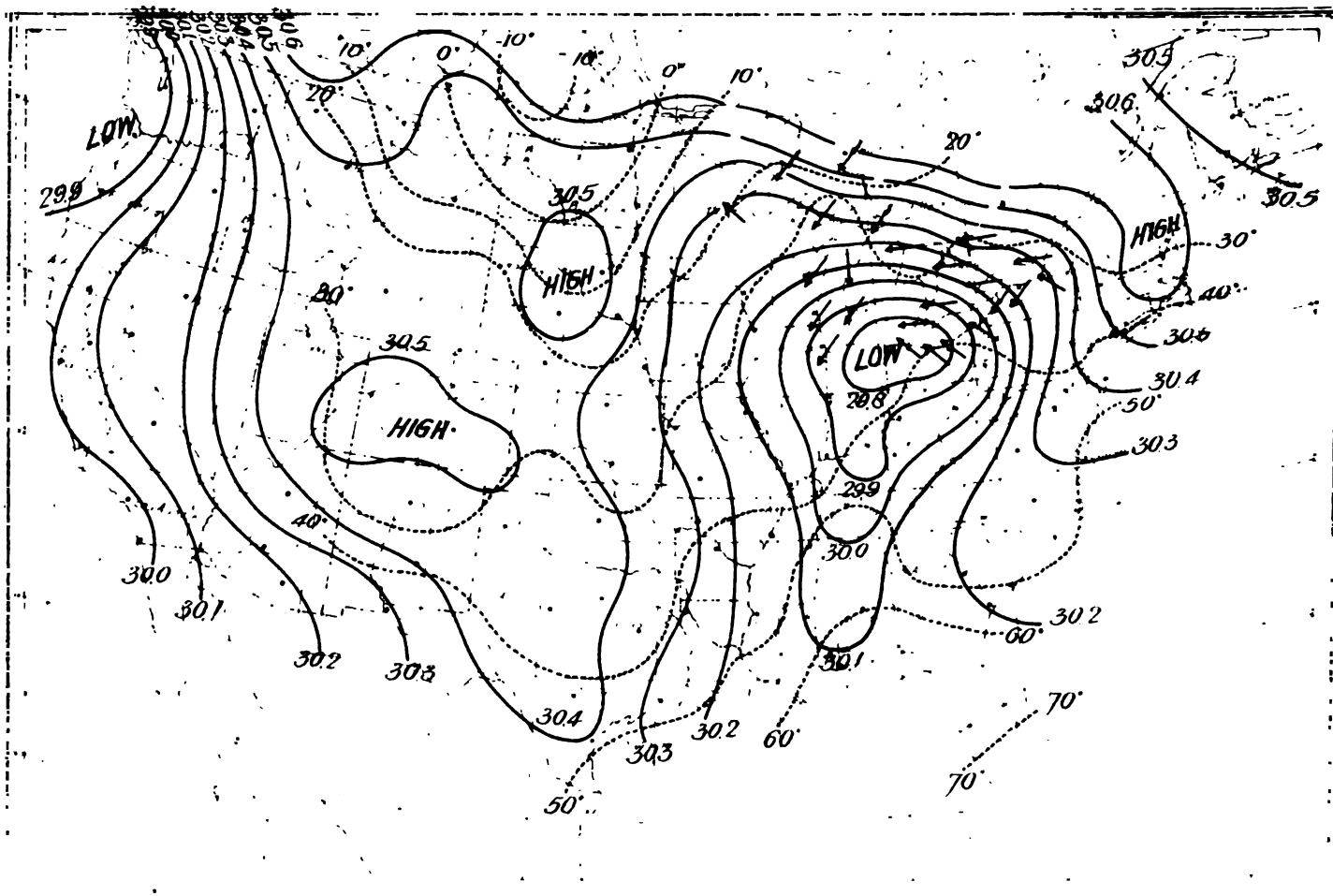
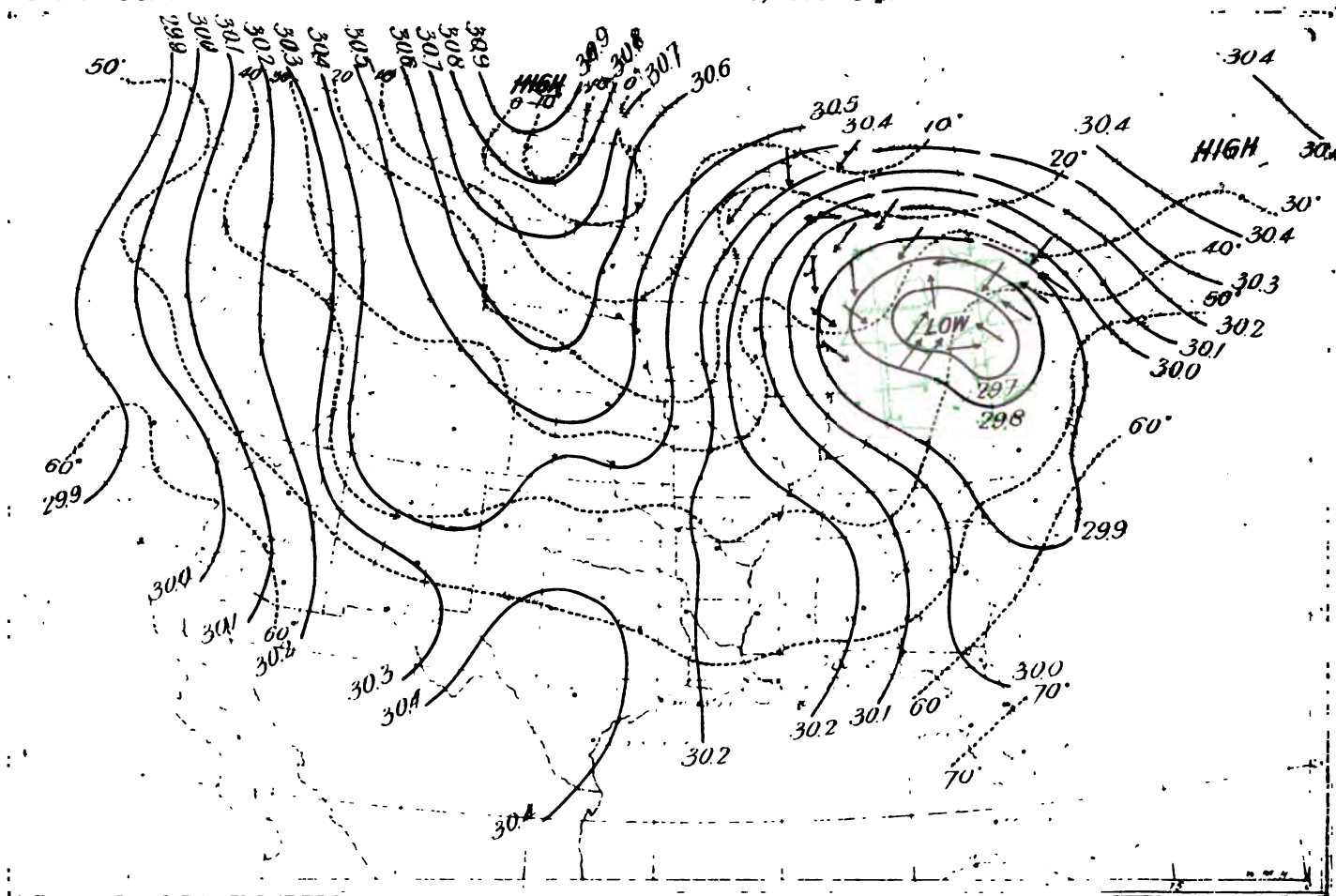
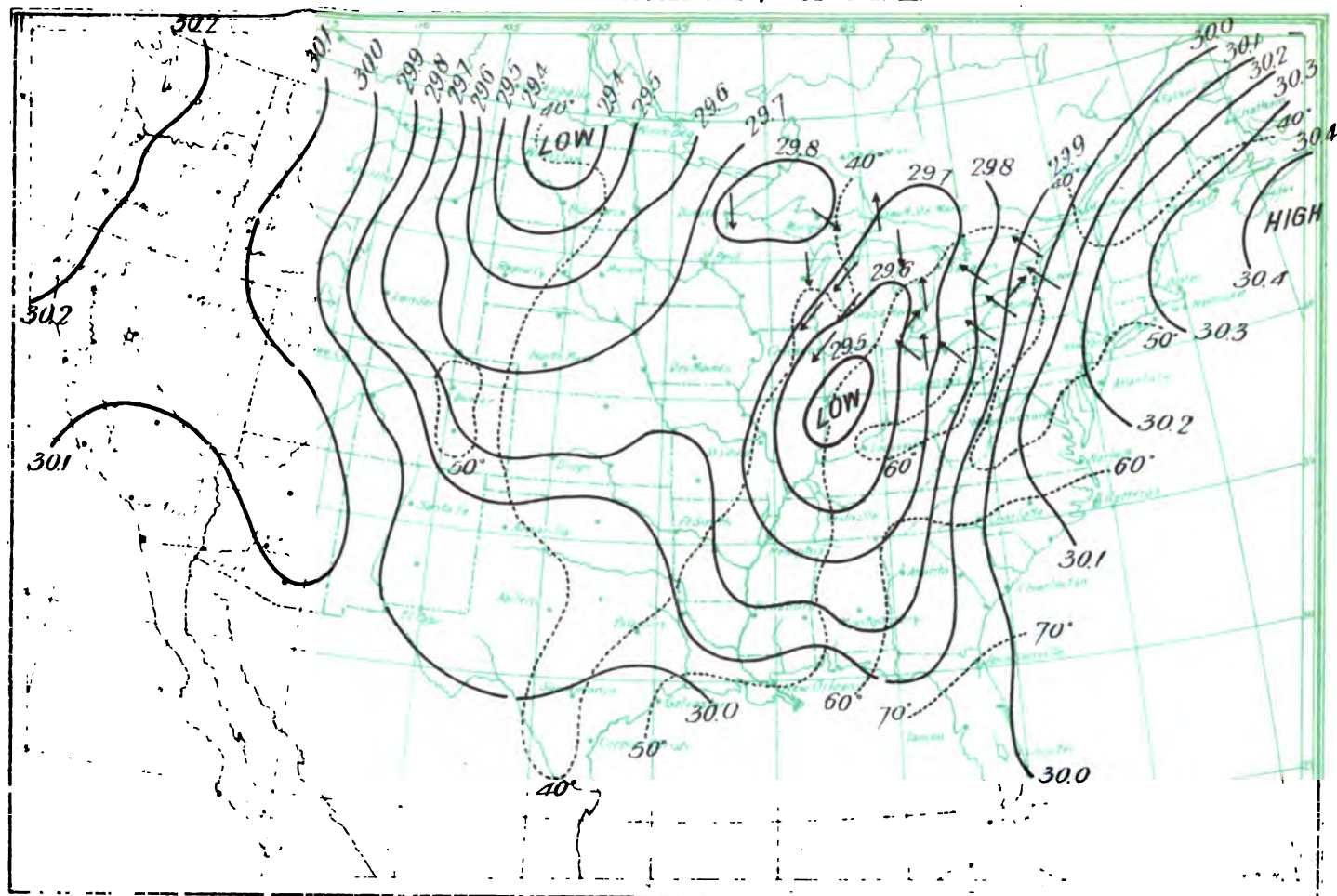


Chart DCCXXXVI.

November 27, 1889—8 p. m.



November 10, 1891—8 a. m.



November 10, 1891—8 p. m.

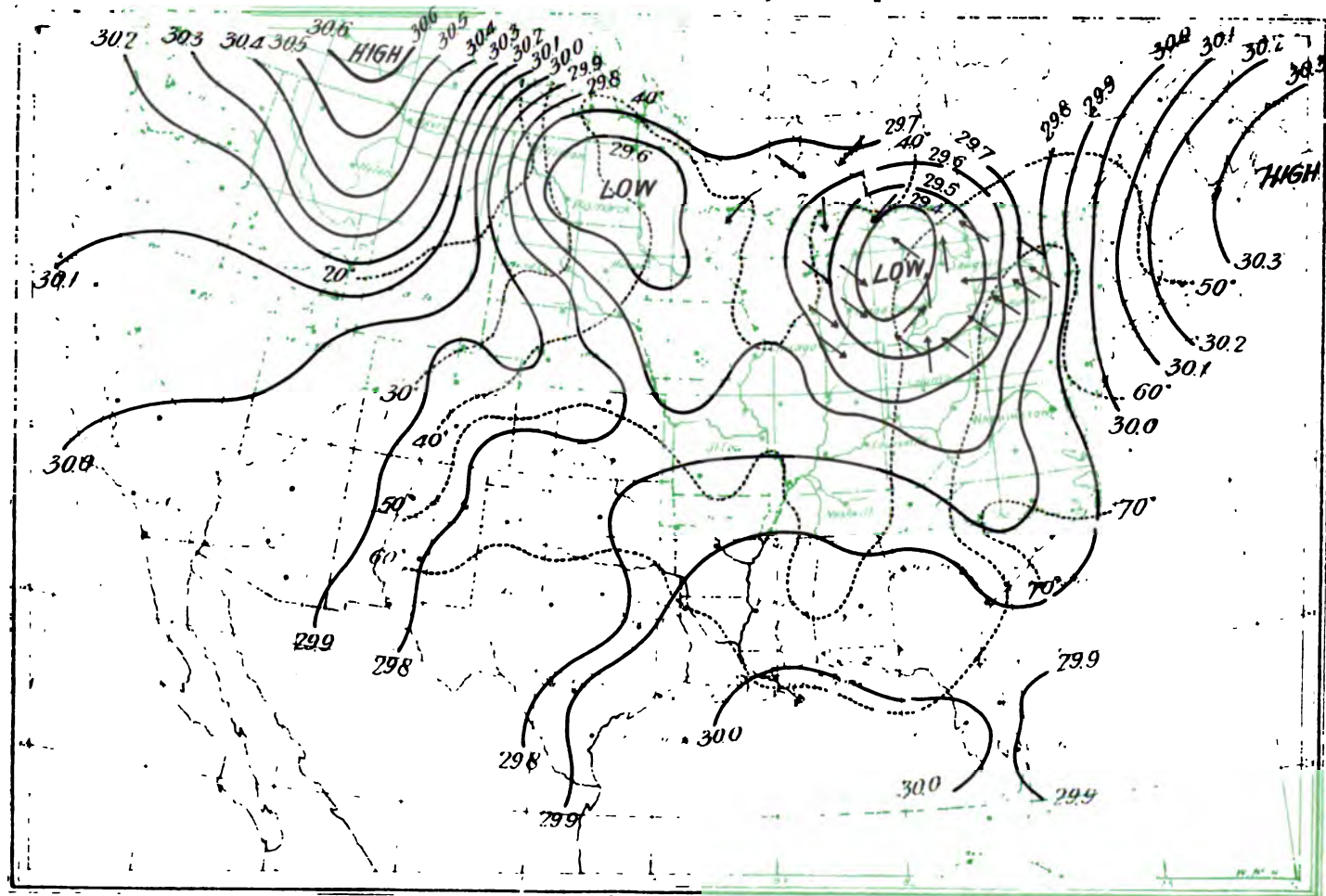


Chart DCCXXXIX.

November 11, 1891—8 a. m.

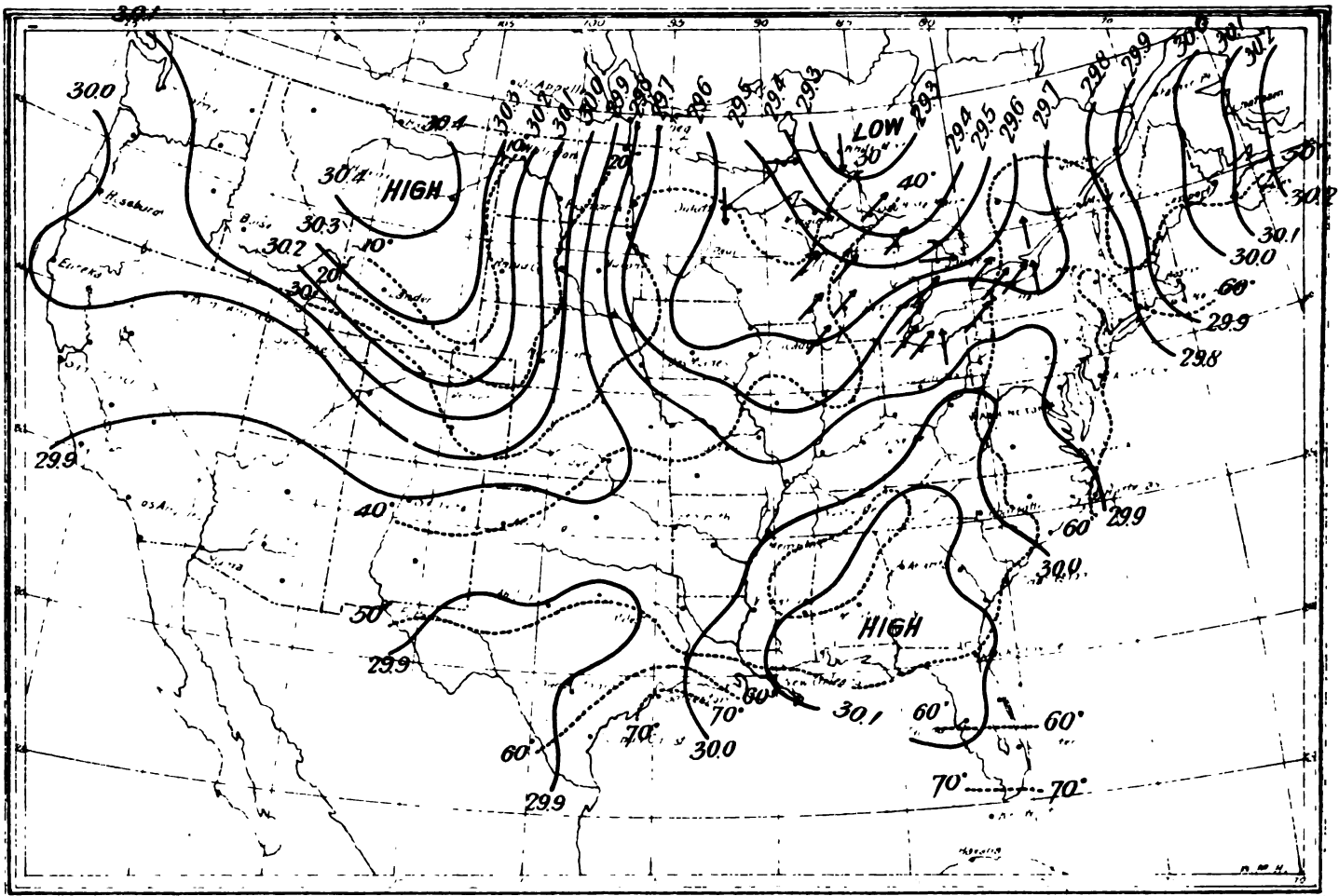


Chart DCCXL.

November 11, 1891—8 p. m.

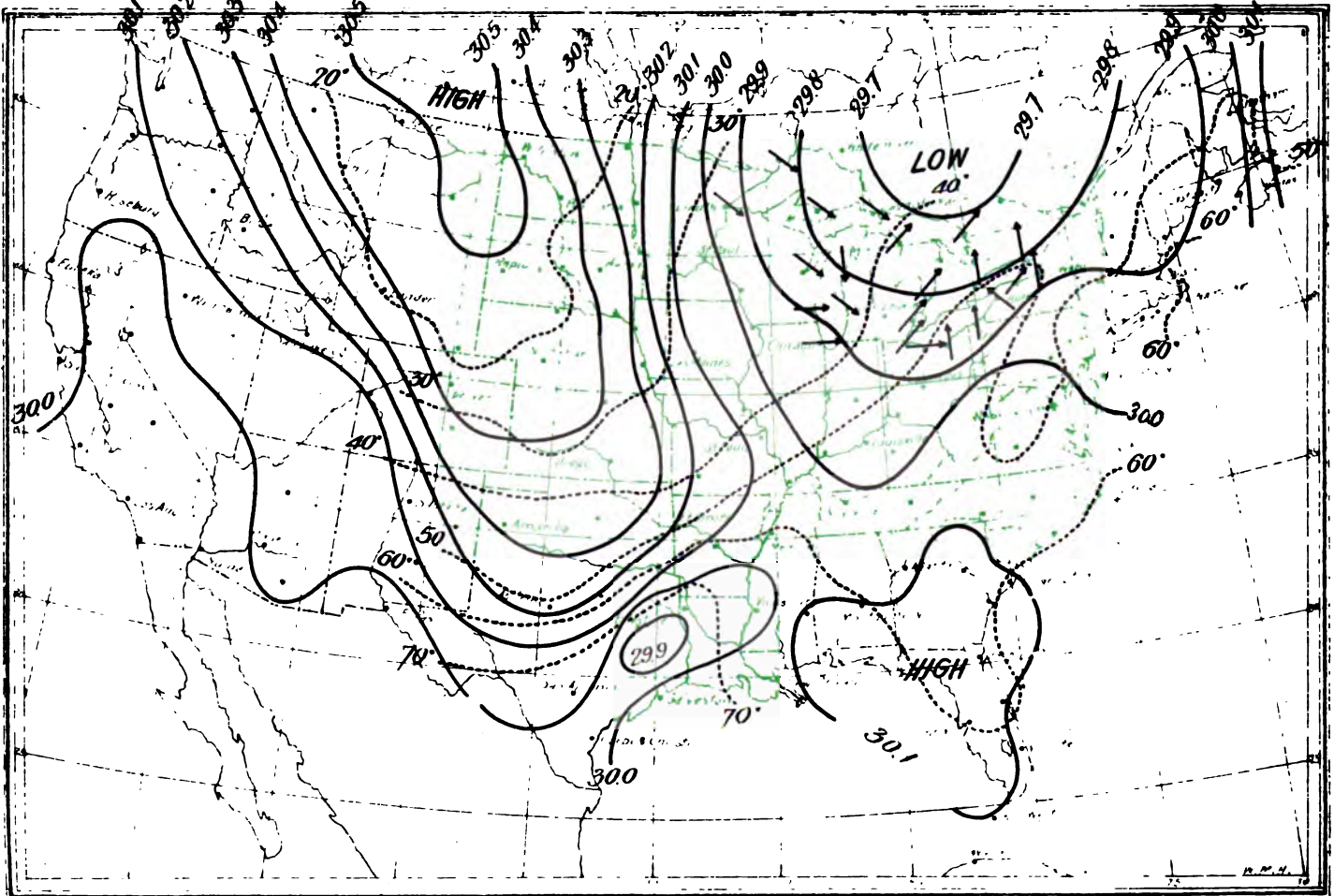


Chart DCOXLIII.

November 16, 1891—8 a. m.

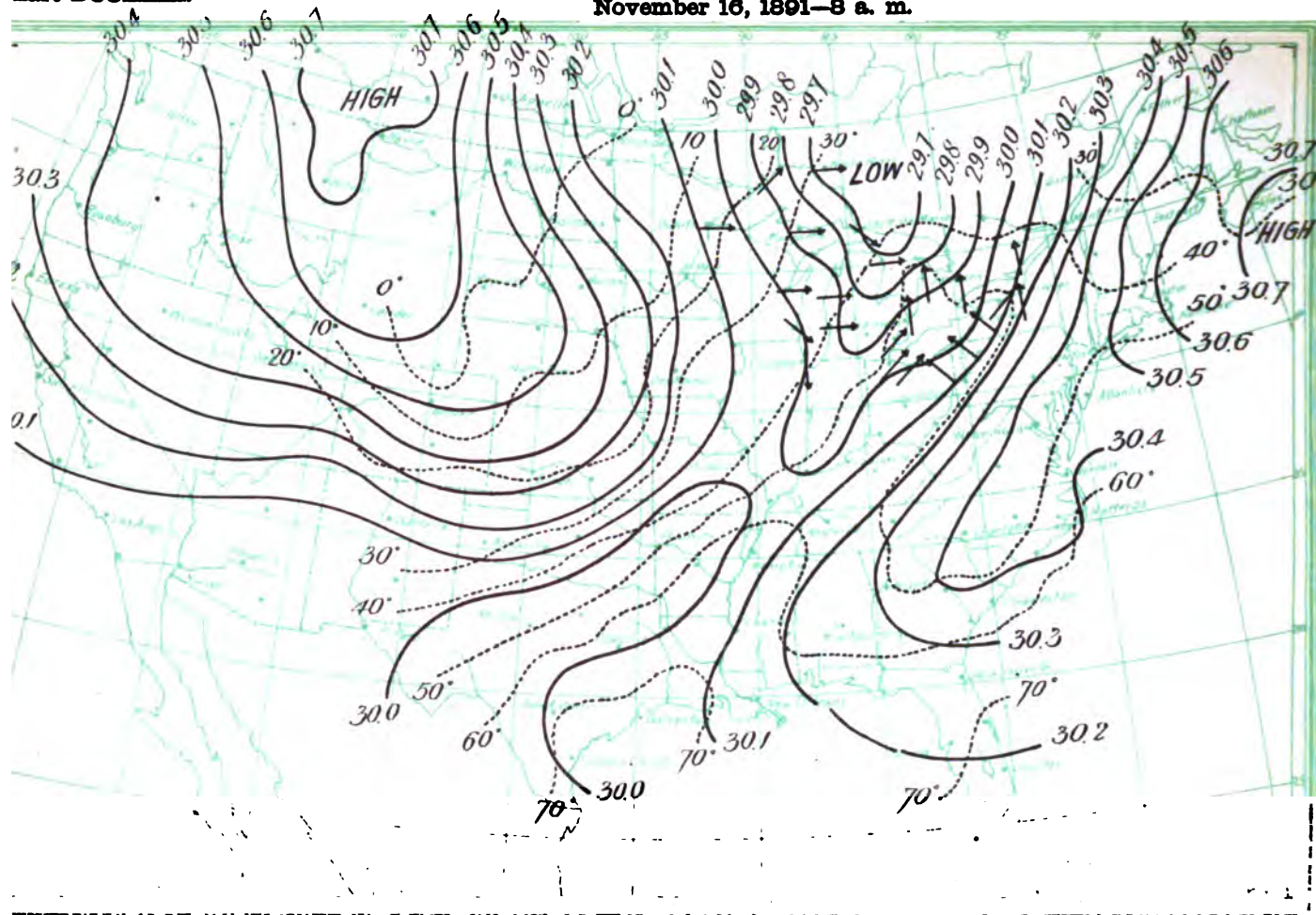


Chart DCOXLIV.

November 16, 1891—8 p. m.

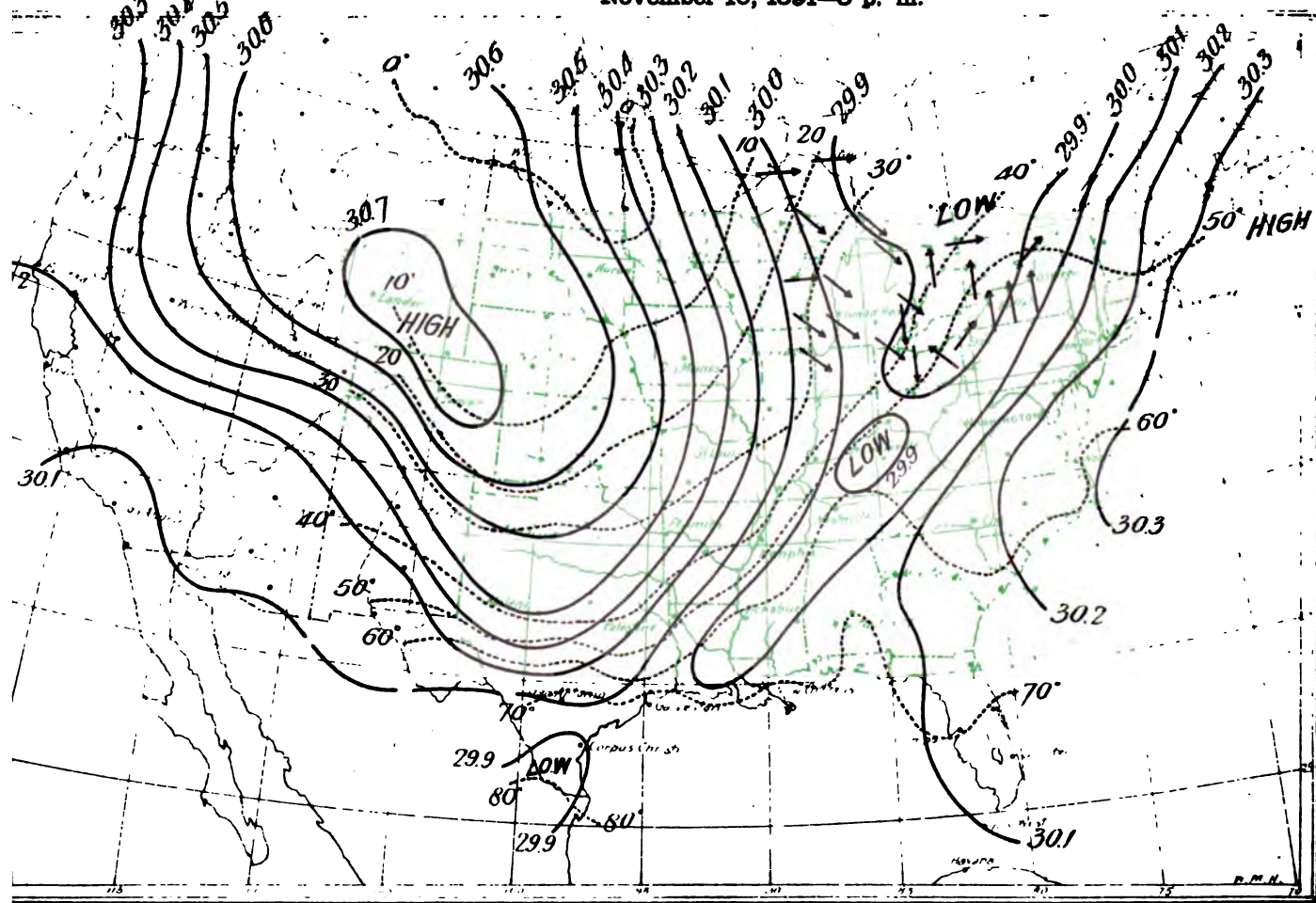


Chart DCOXLV.

November 20, 1891—8 a. m.

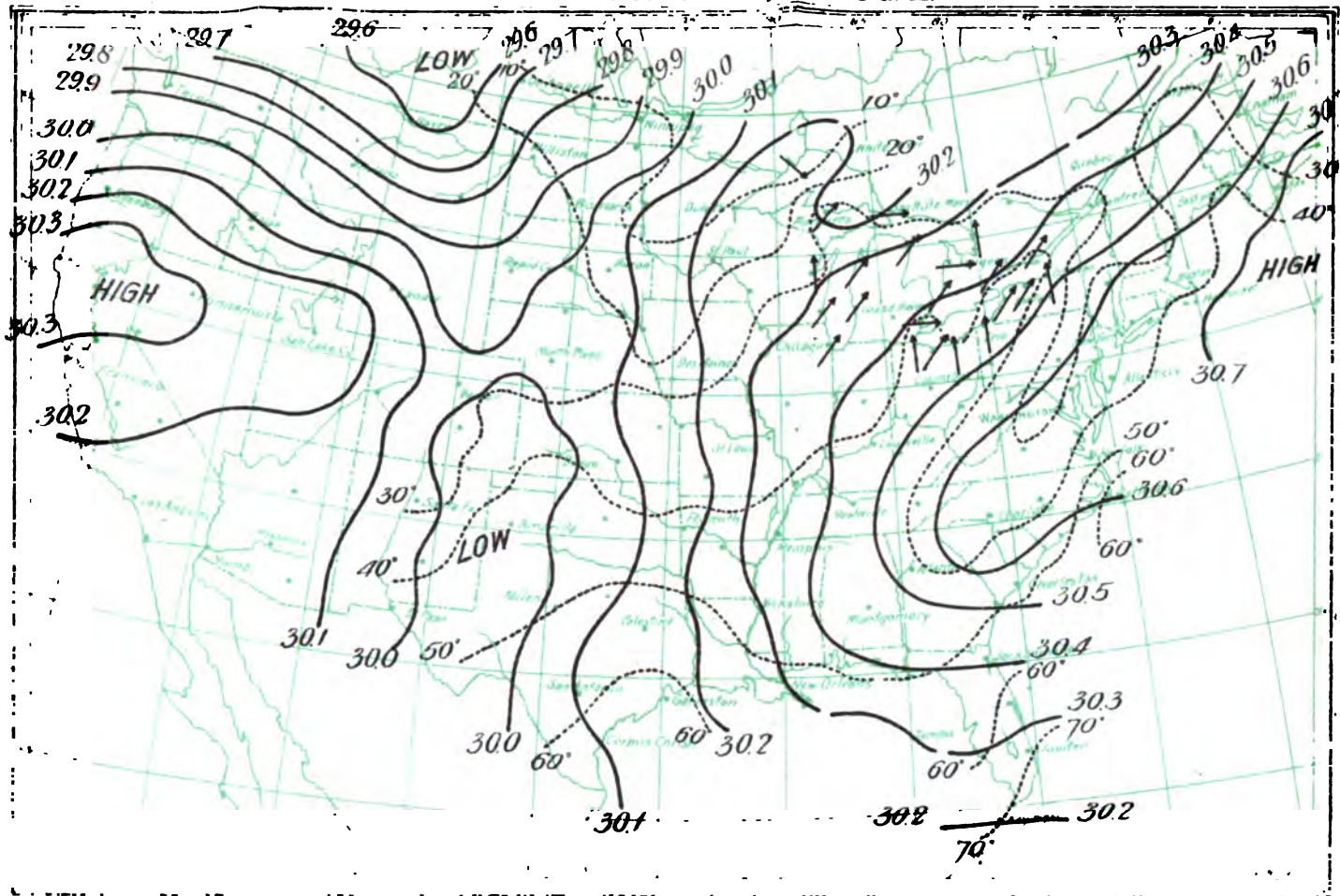


Chart DCOXLVI.

November 20, 1891—8 p. m.

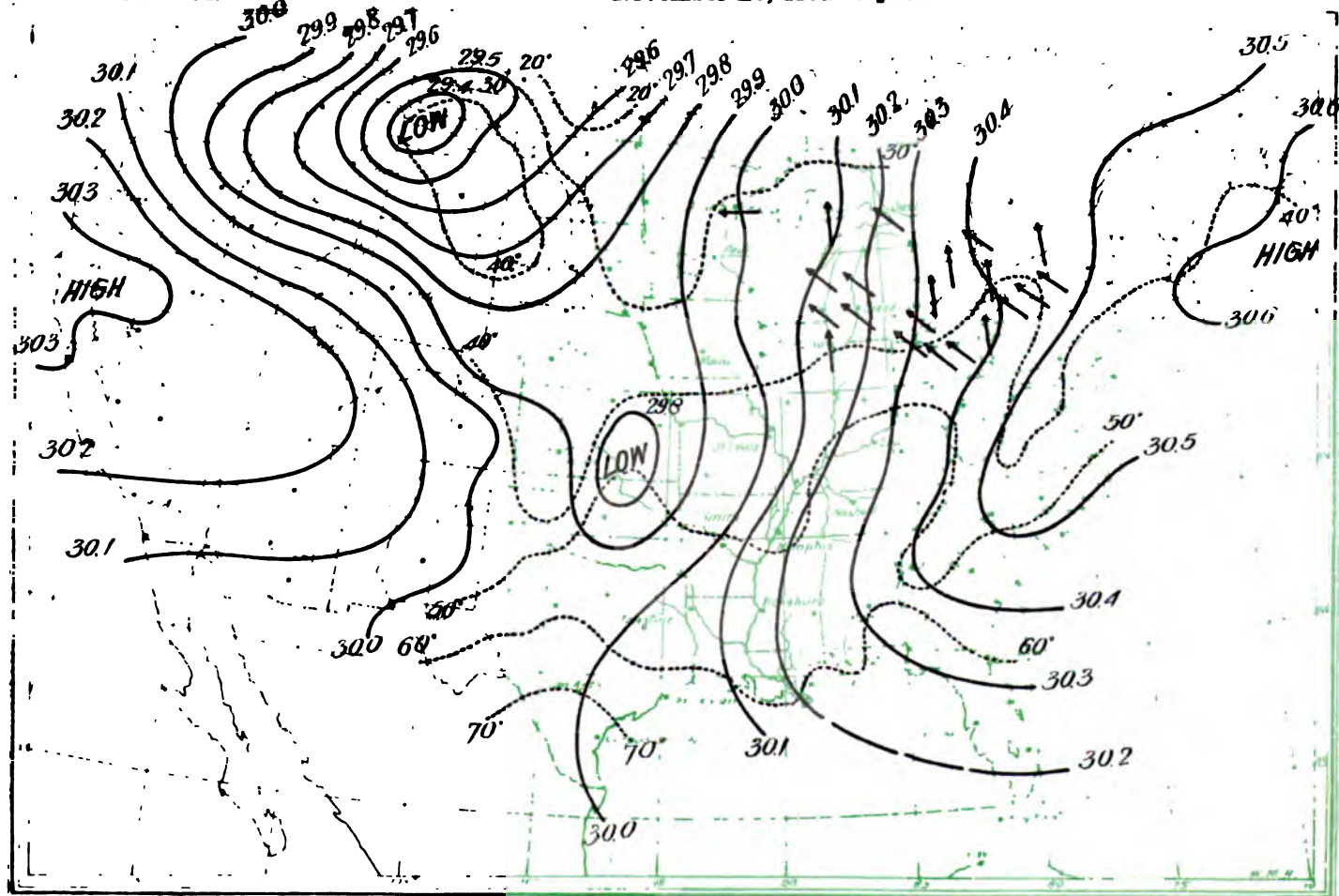


Chart DCCXLVII.

November 21, 1891—8 a. m.

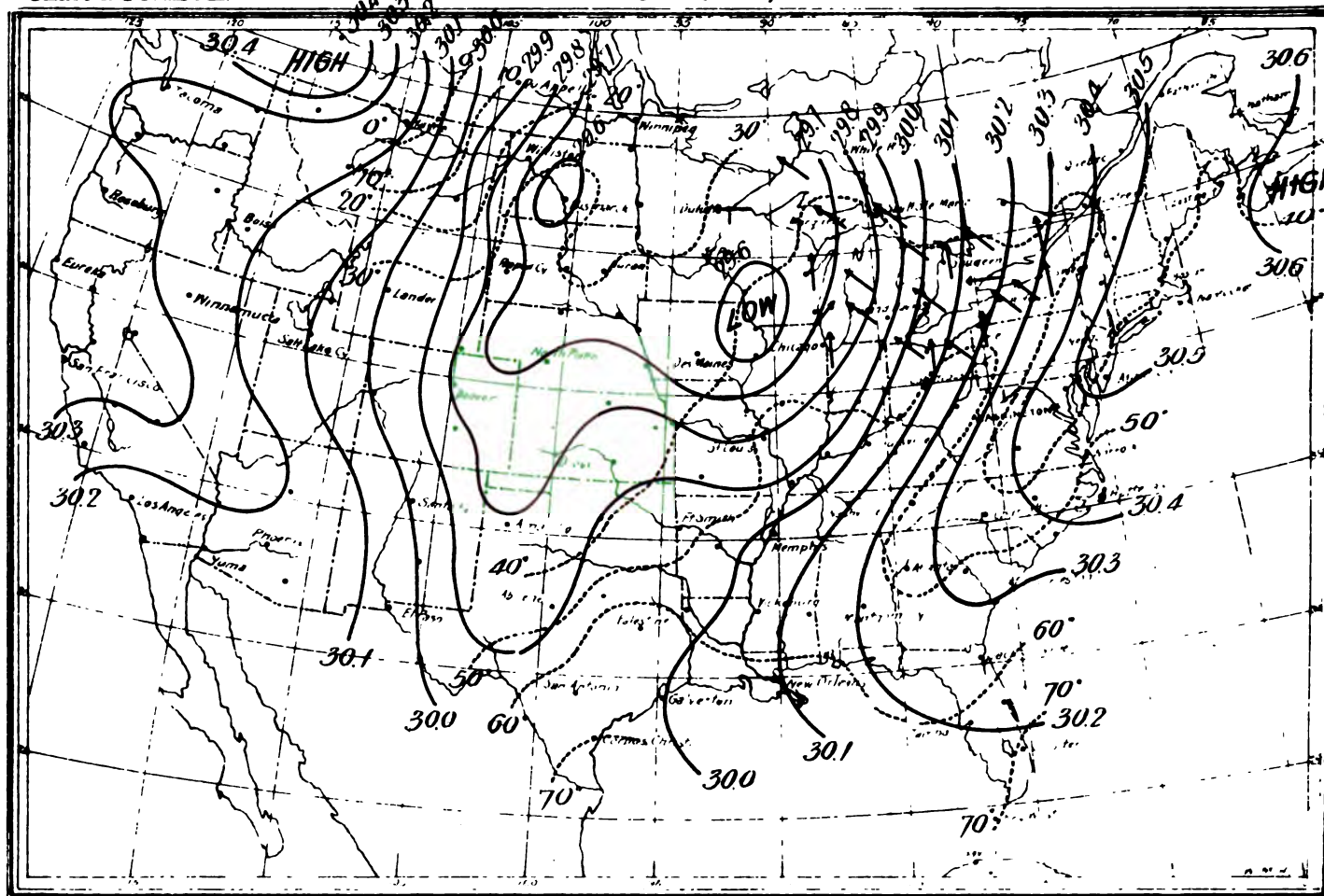


Chart DCCXLVIII.

November 21, 1891—8 p. m.

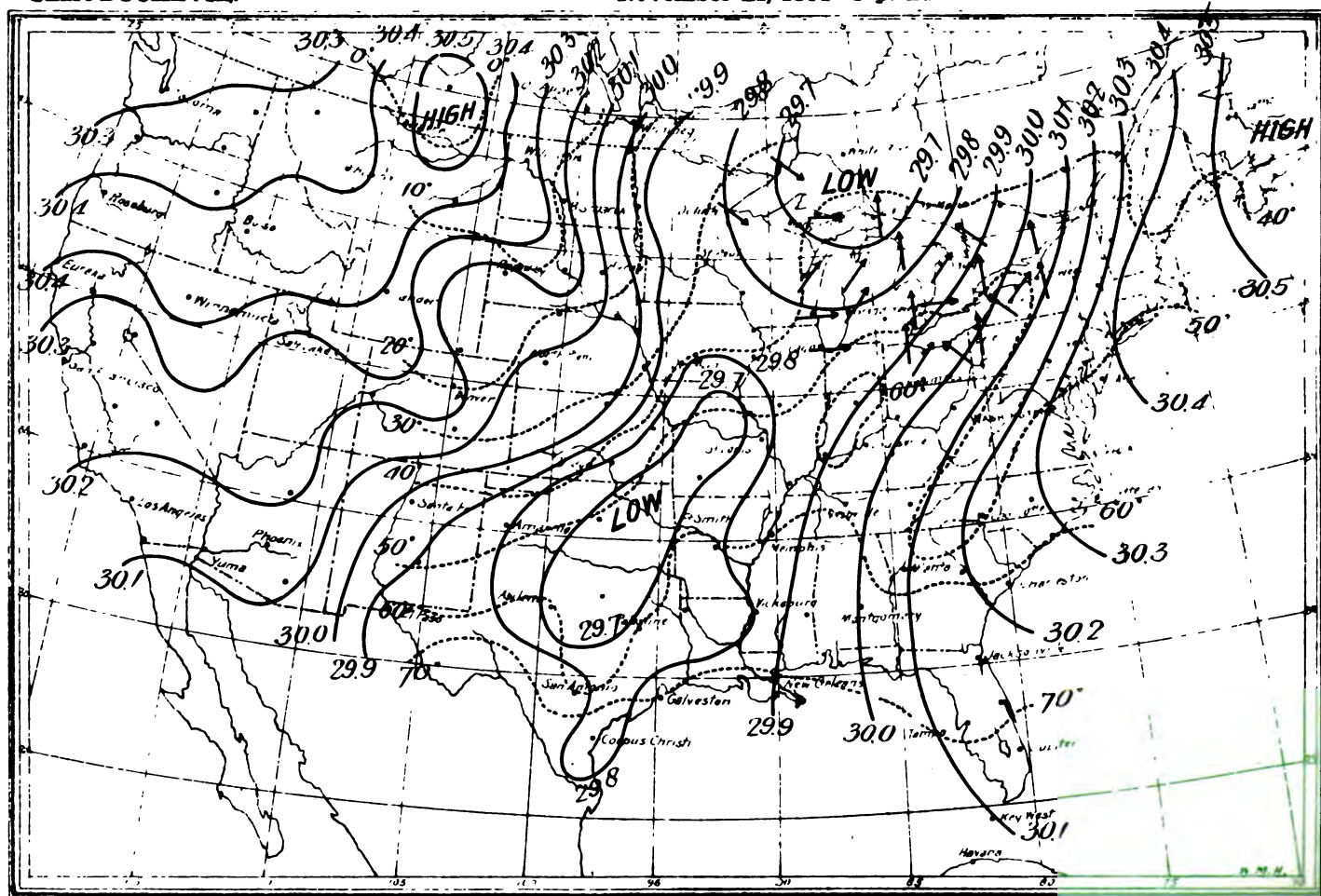


Chart DOOXLIX.

November 25, 1891—8 a. m.

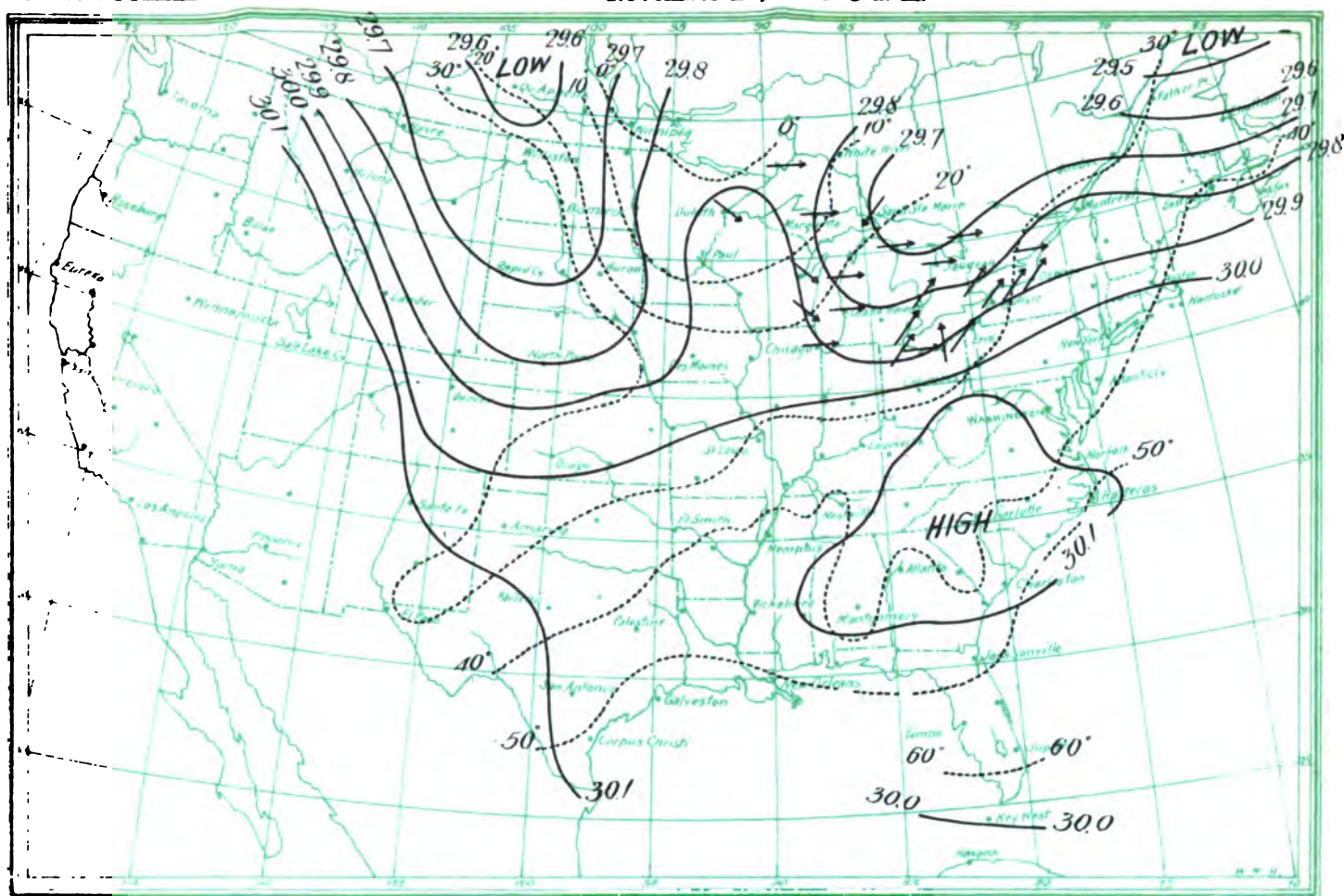
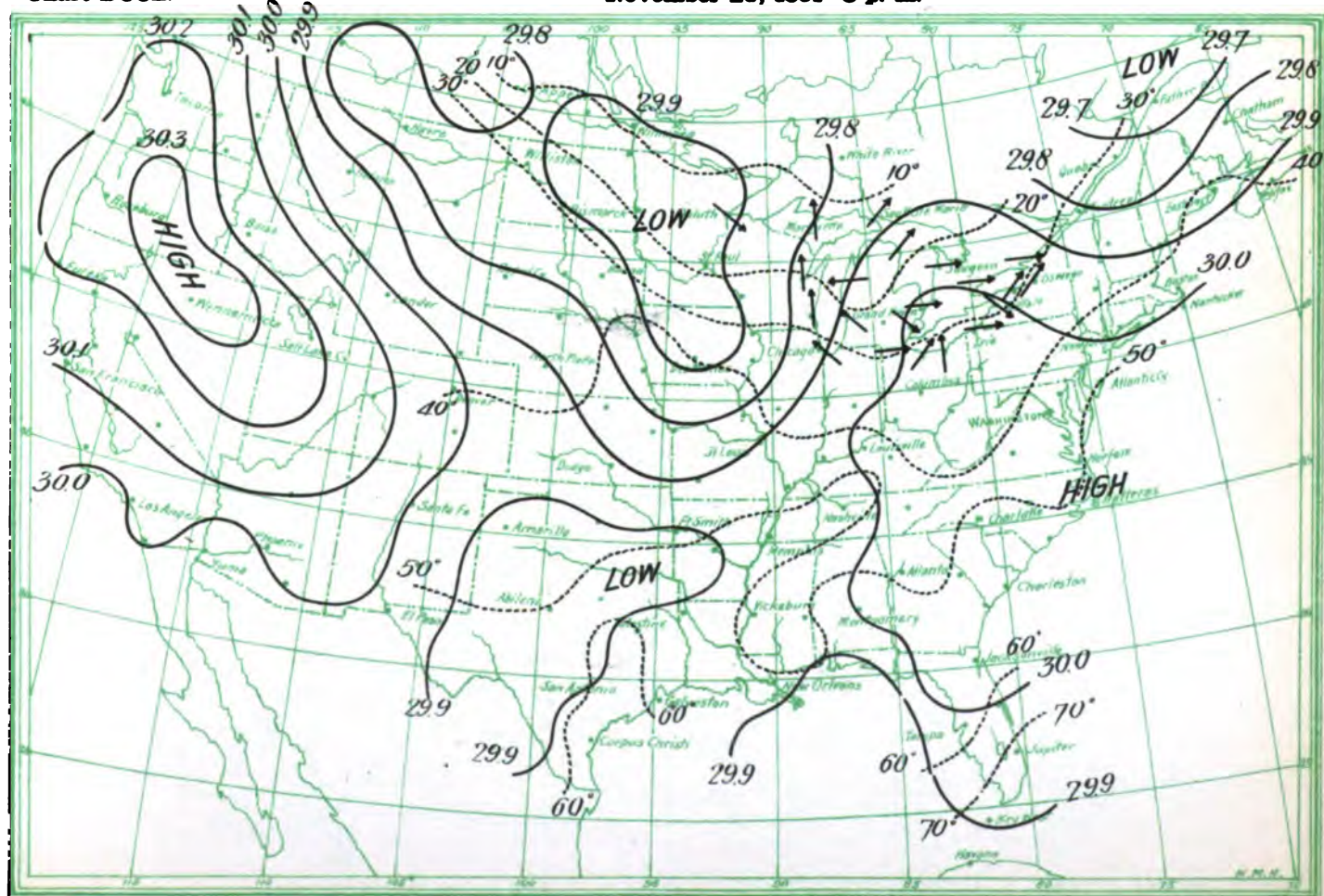
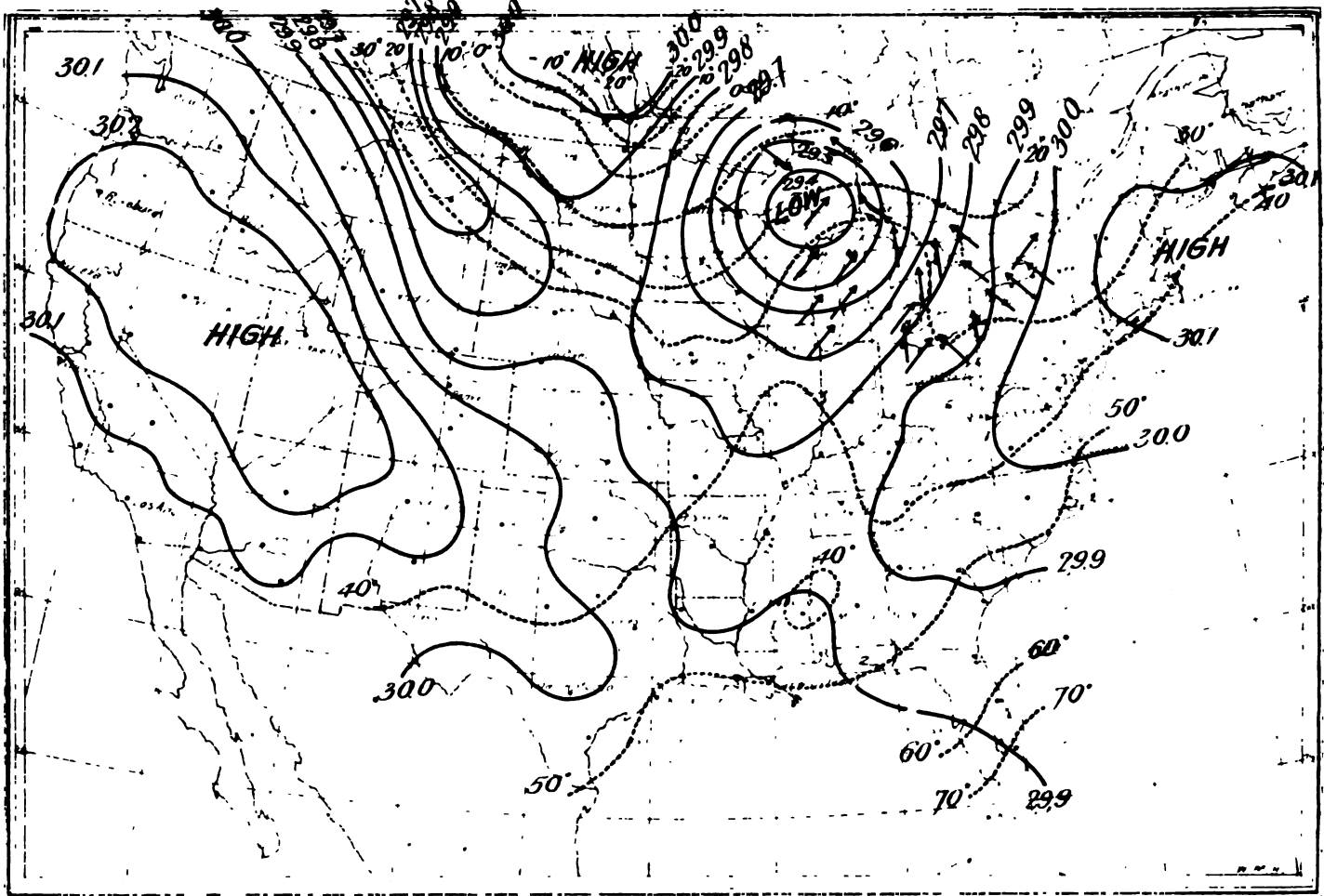


Chart DOOL.

November 25, 1891—8 p. m.



November 26, 1891—8 a. m.



November 26, 1891—8 p. m.

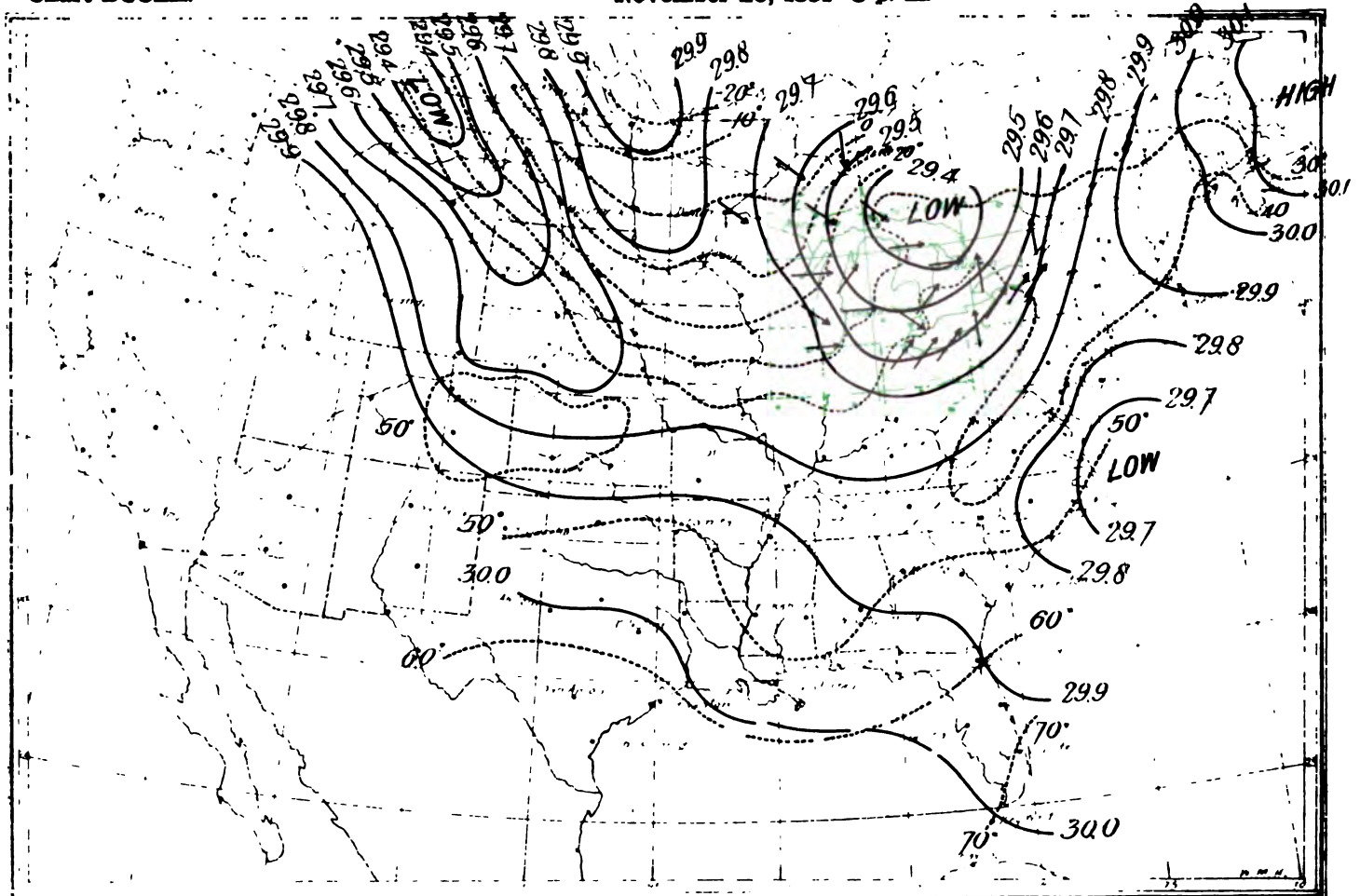


Chart DOOLIII.

November 6, 1892—8 a. m.

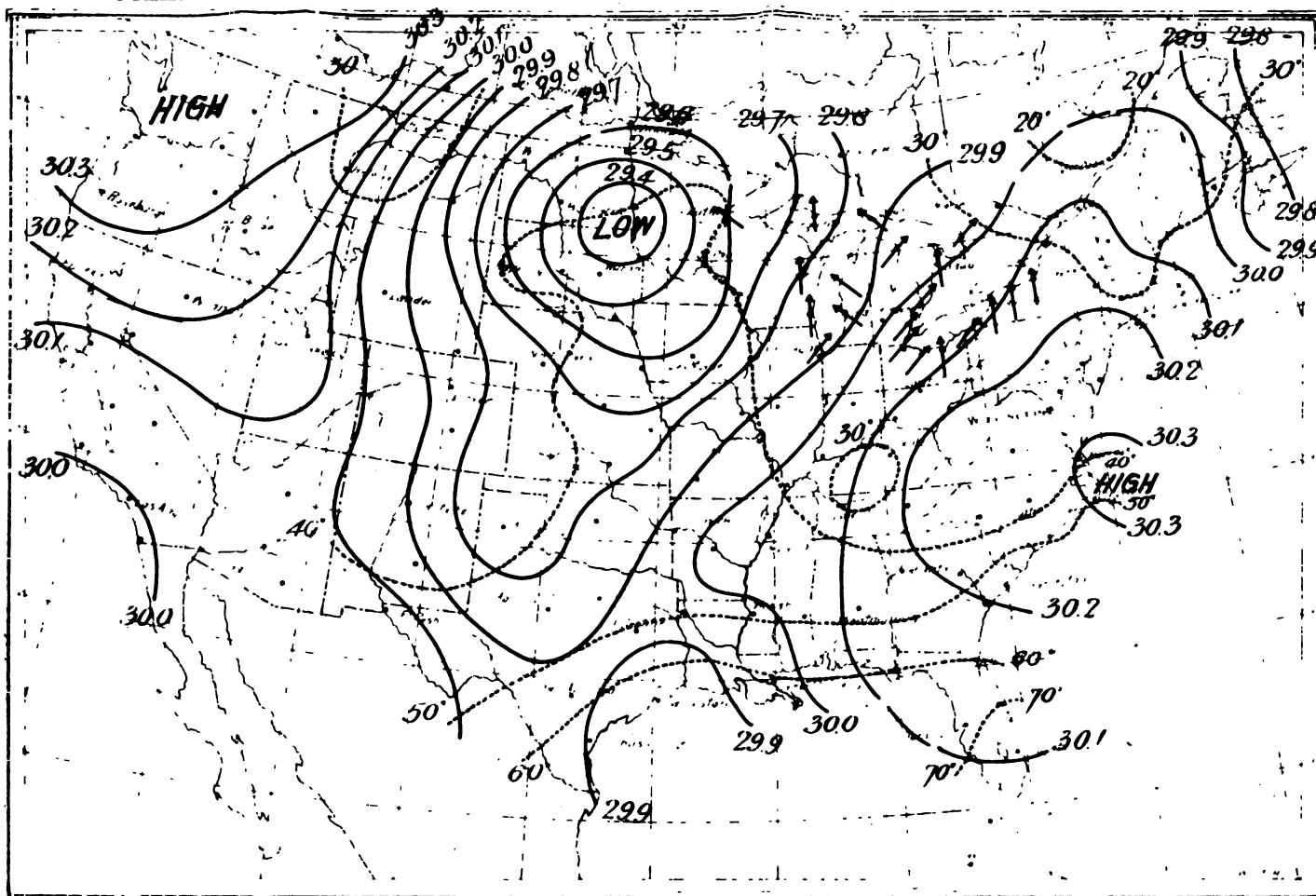


Chart DOOLIV.

November 6, 1892—8 p. m.

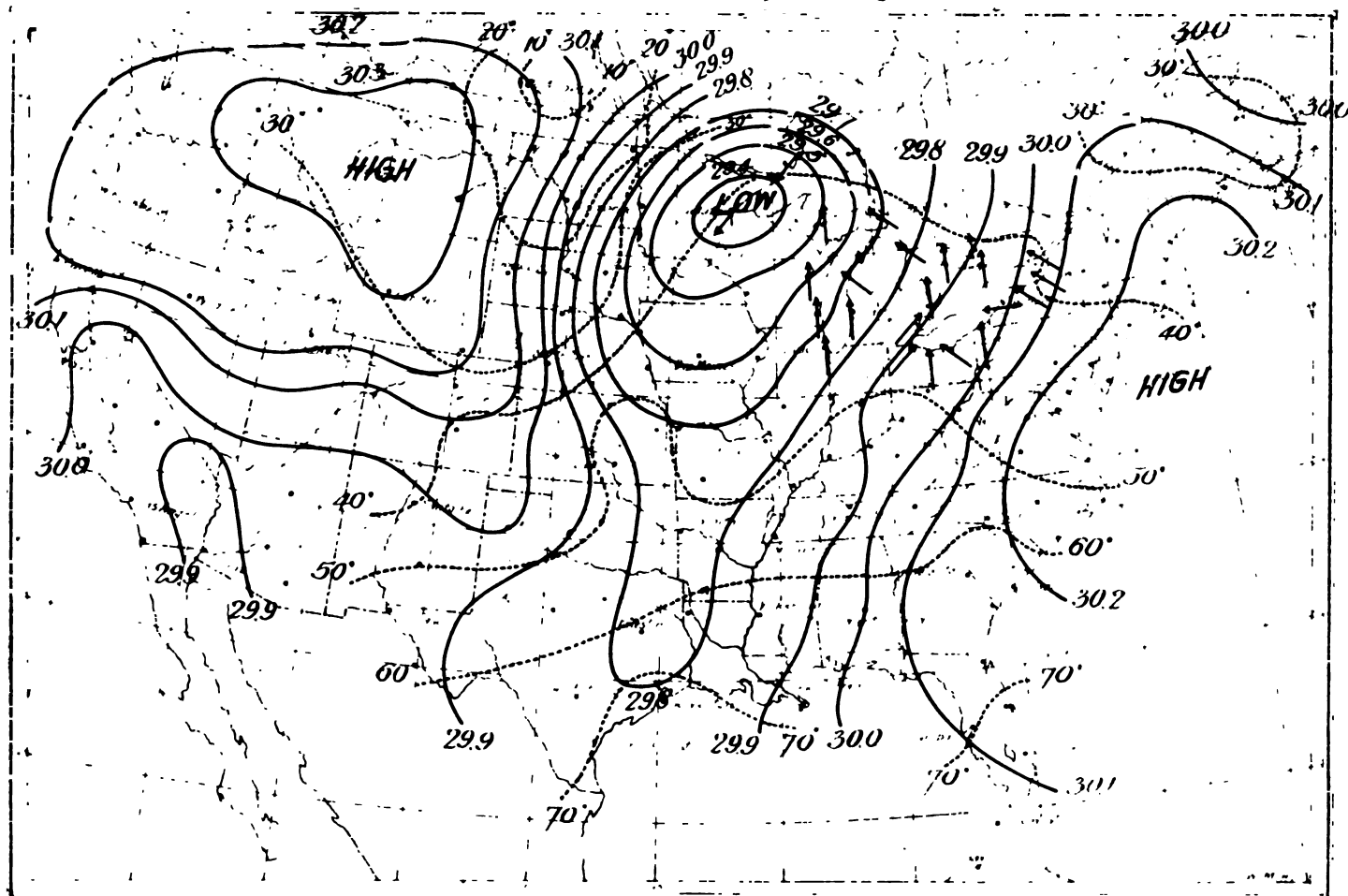


Chart DOOLV.

November 7, 1892—8 a. m.

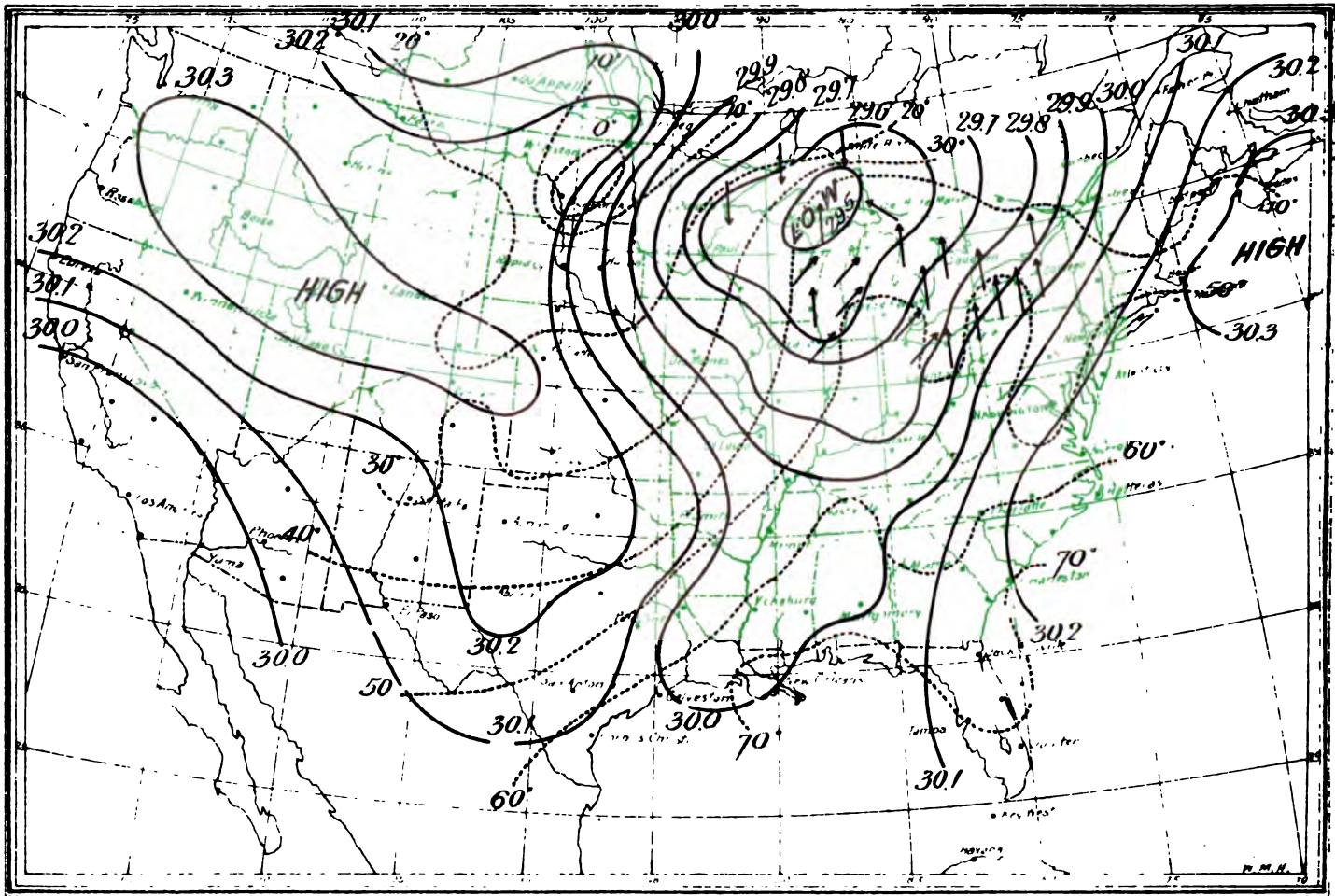


Chart DOOLVI.

November 7, 1892—8 p. m.

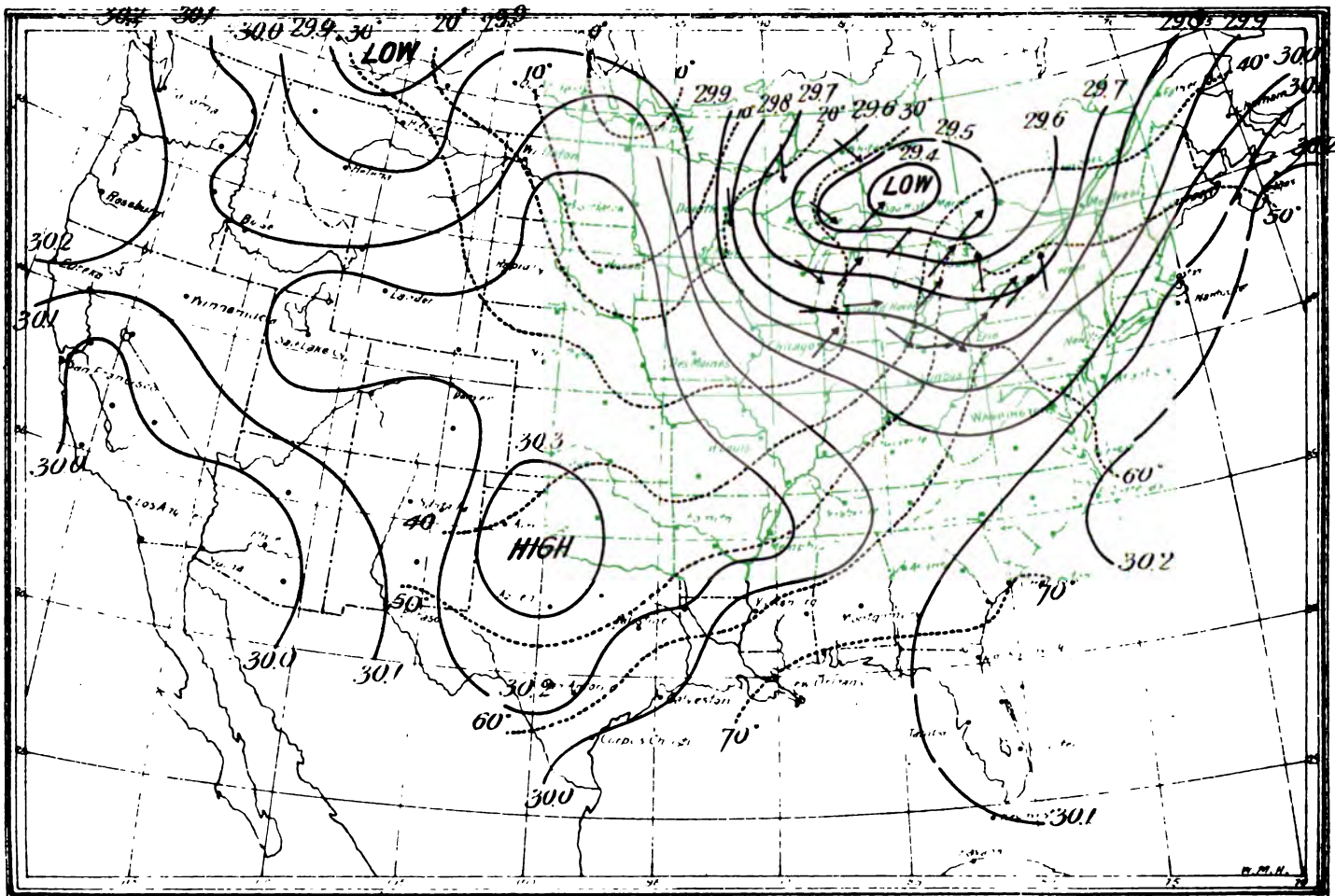


Chart DOOLVII.

November 16, 1892—8 a. m.

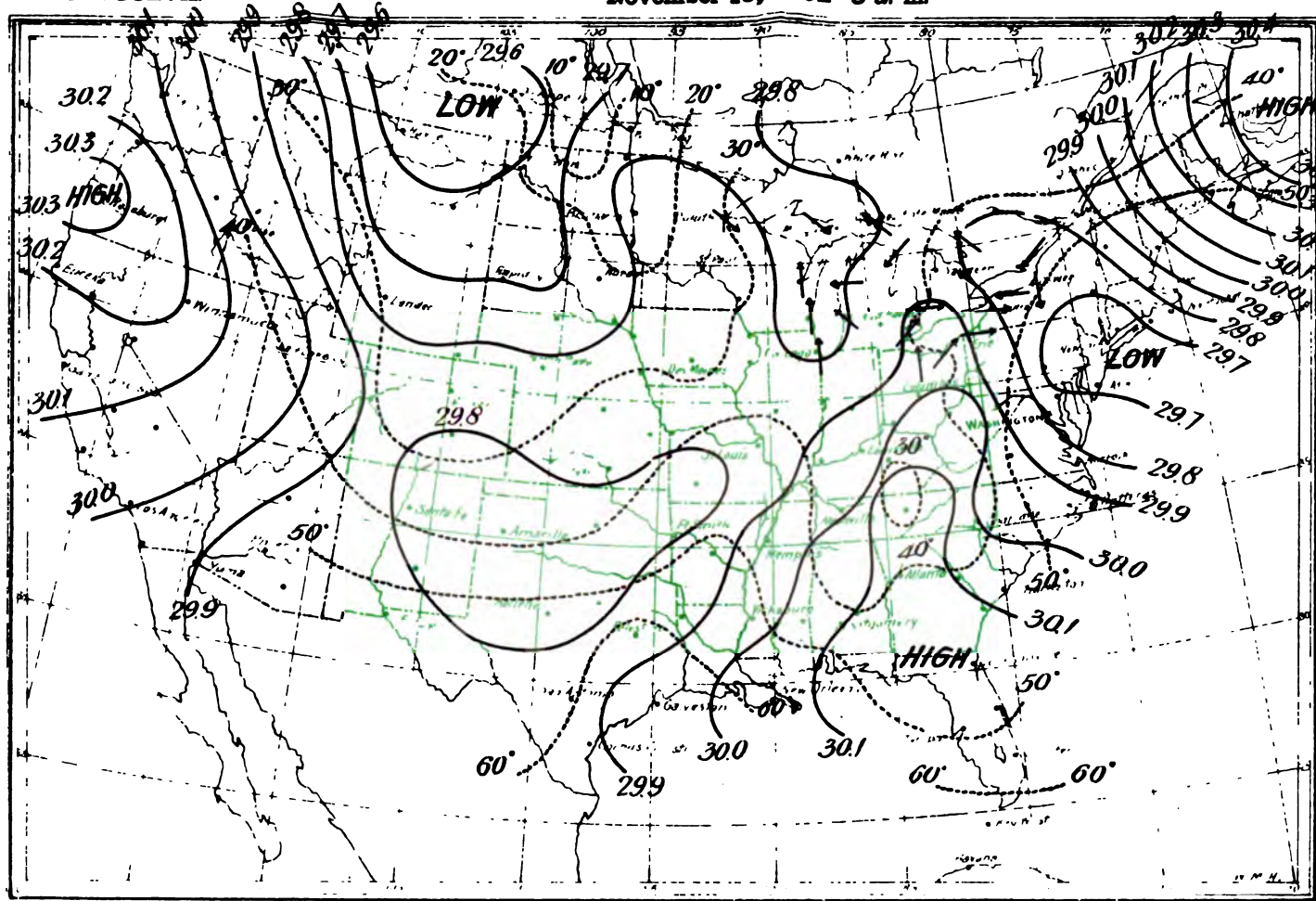


Chart DOOLVIII.

November 16, 1892—8 p. m.

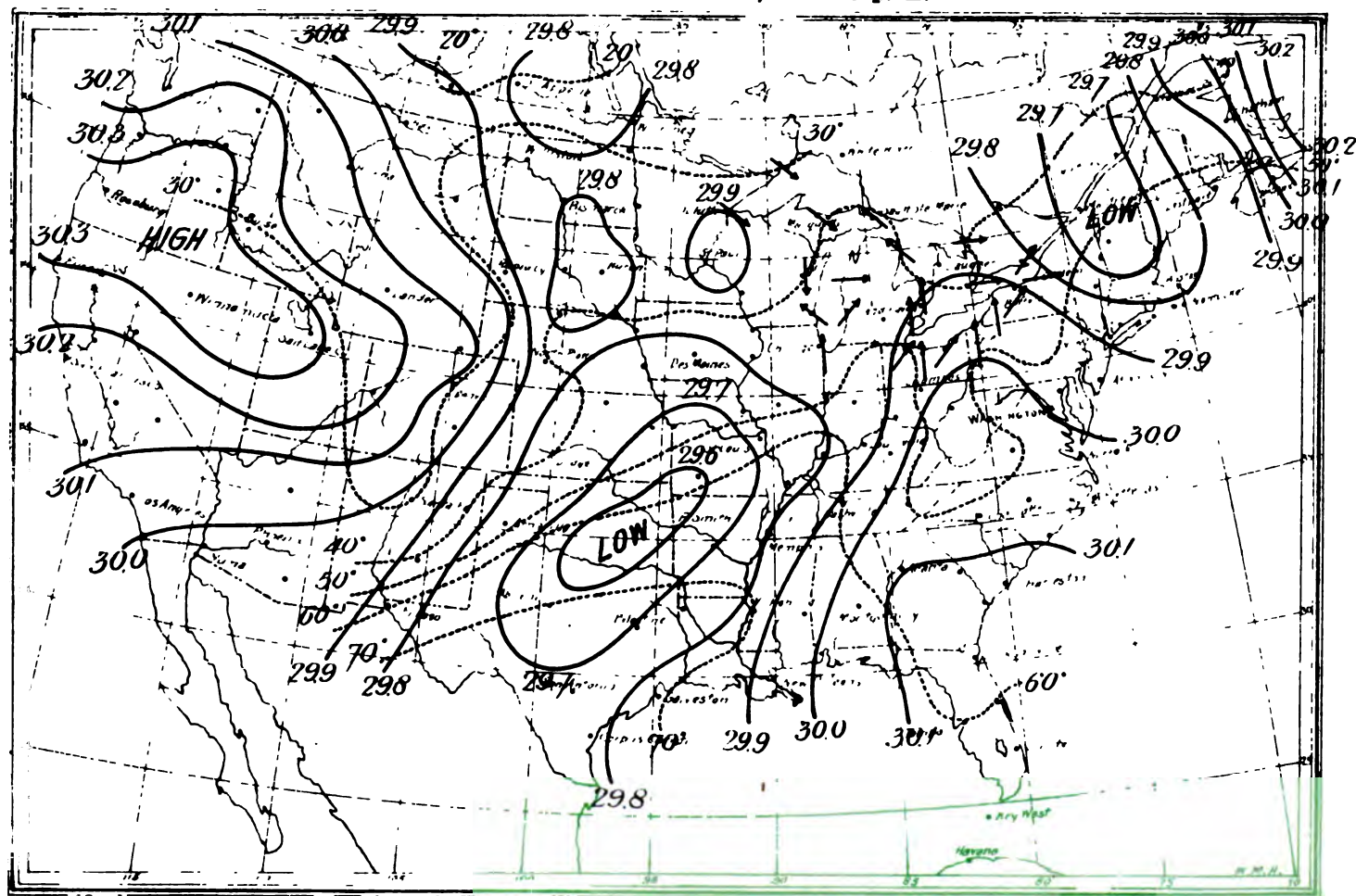


Chart DOCLIX.

November 17, 1892—8 a. m.

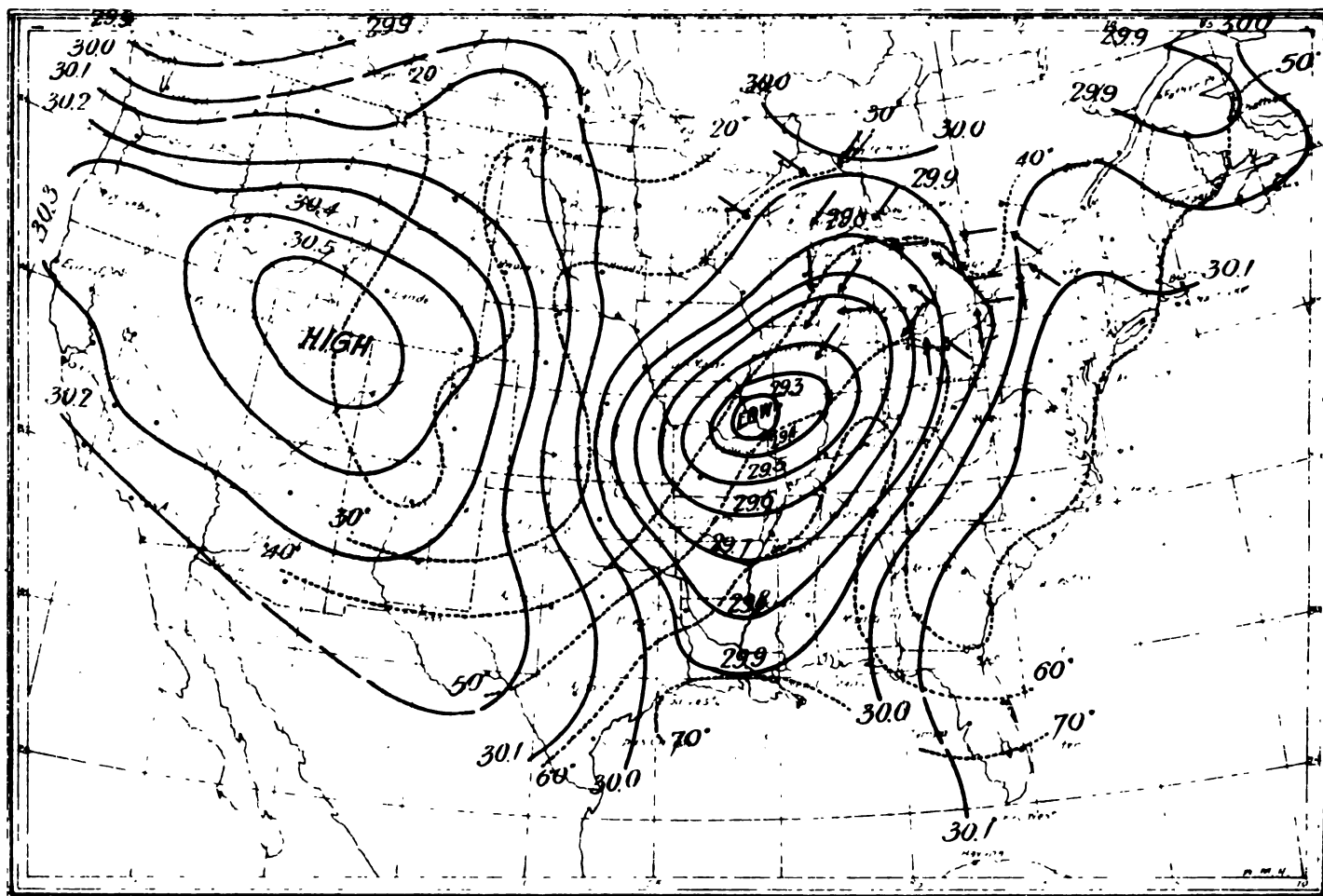


Chart DOCLIX.

November 17, 1892—8 p. m.

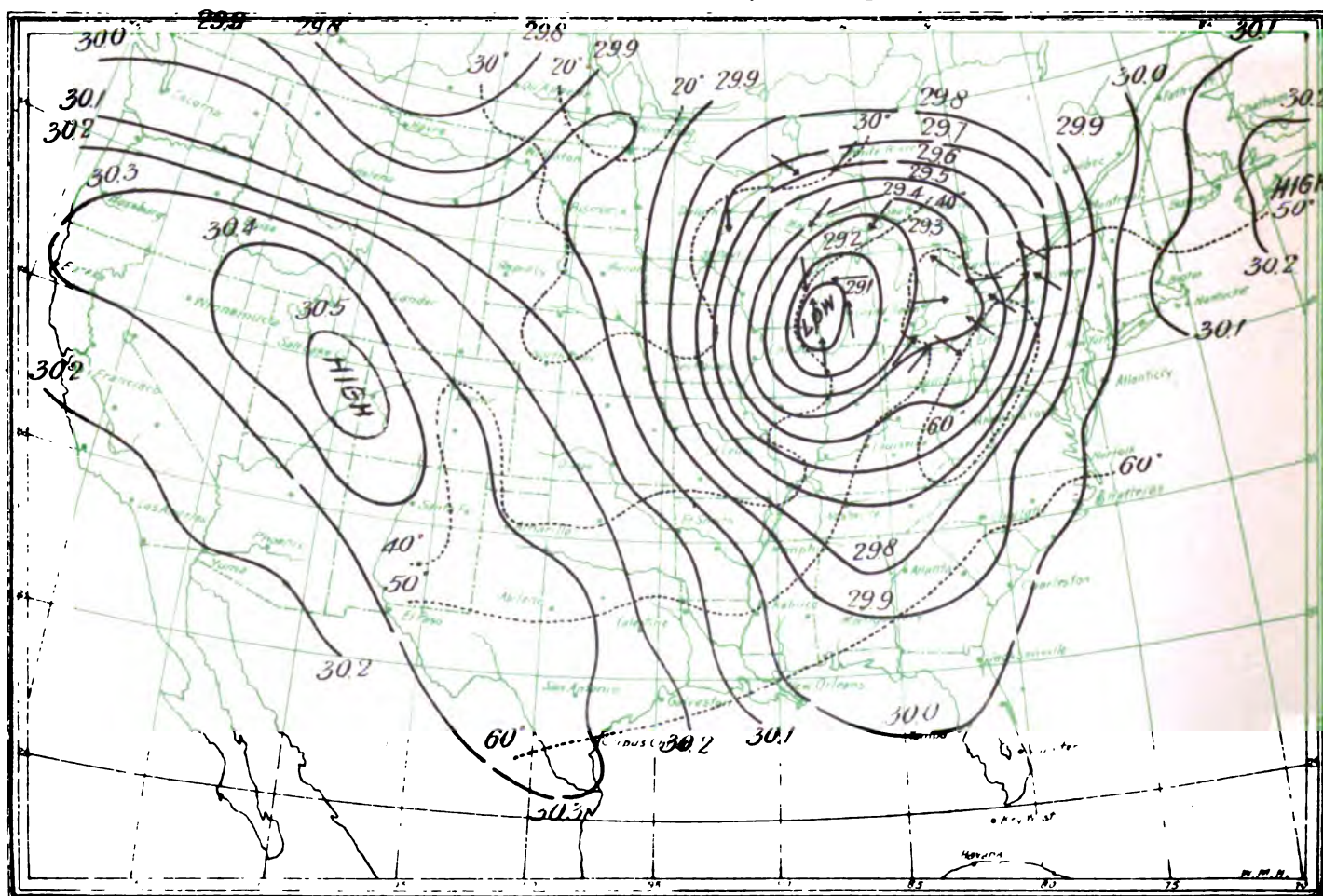


Chart DOOLXI.

November 21, 1893—8 a. m.

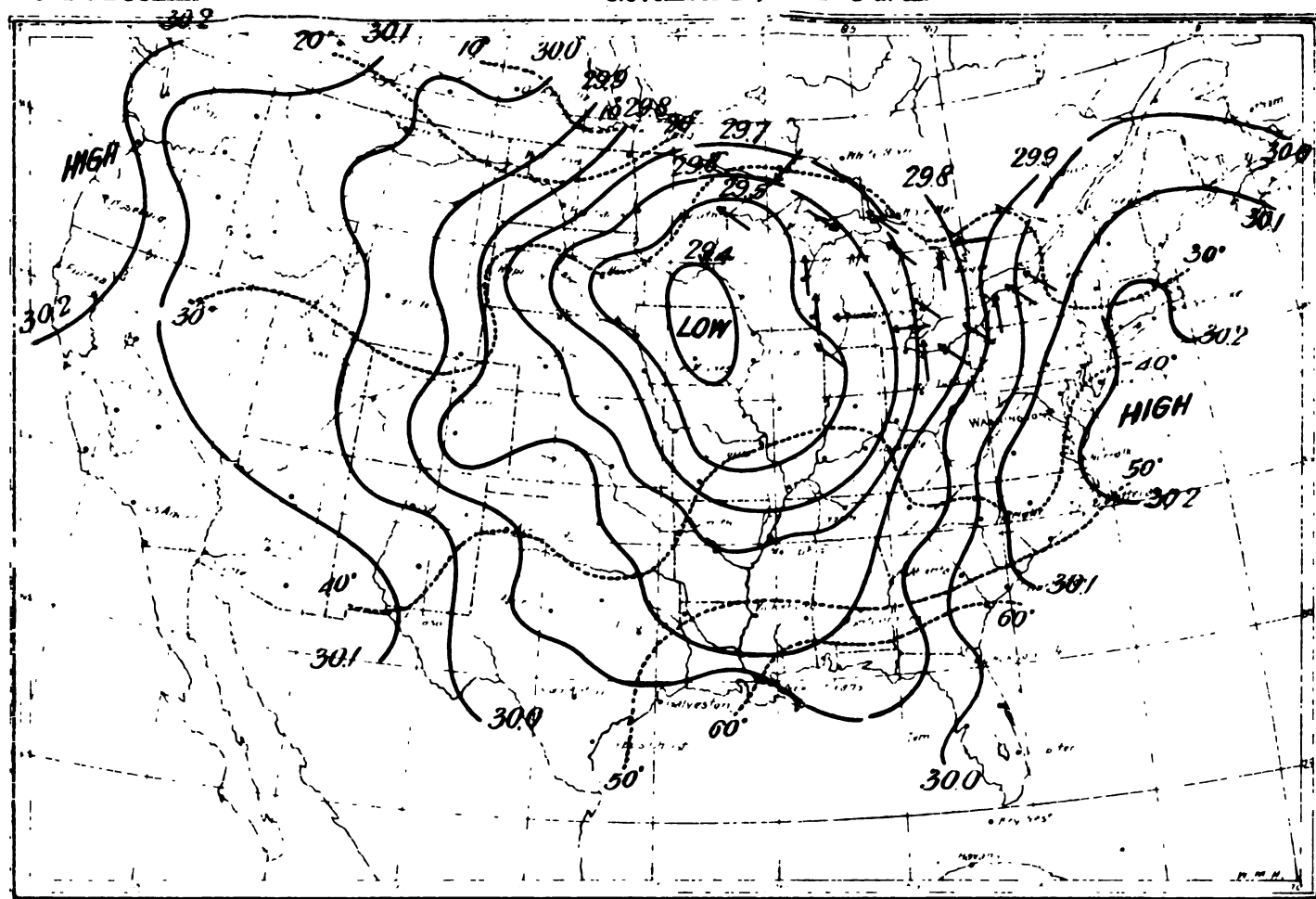


Chart DOOLXII.

November 21, 1893—8 p. m.

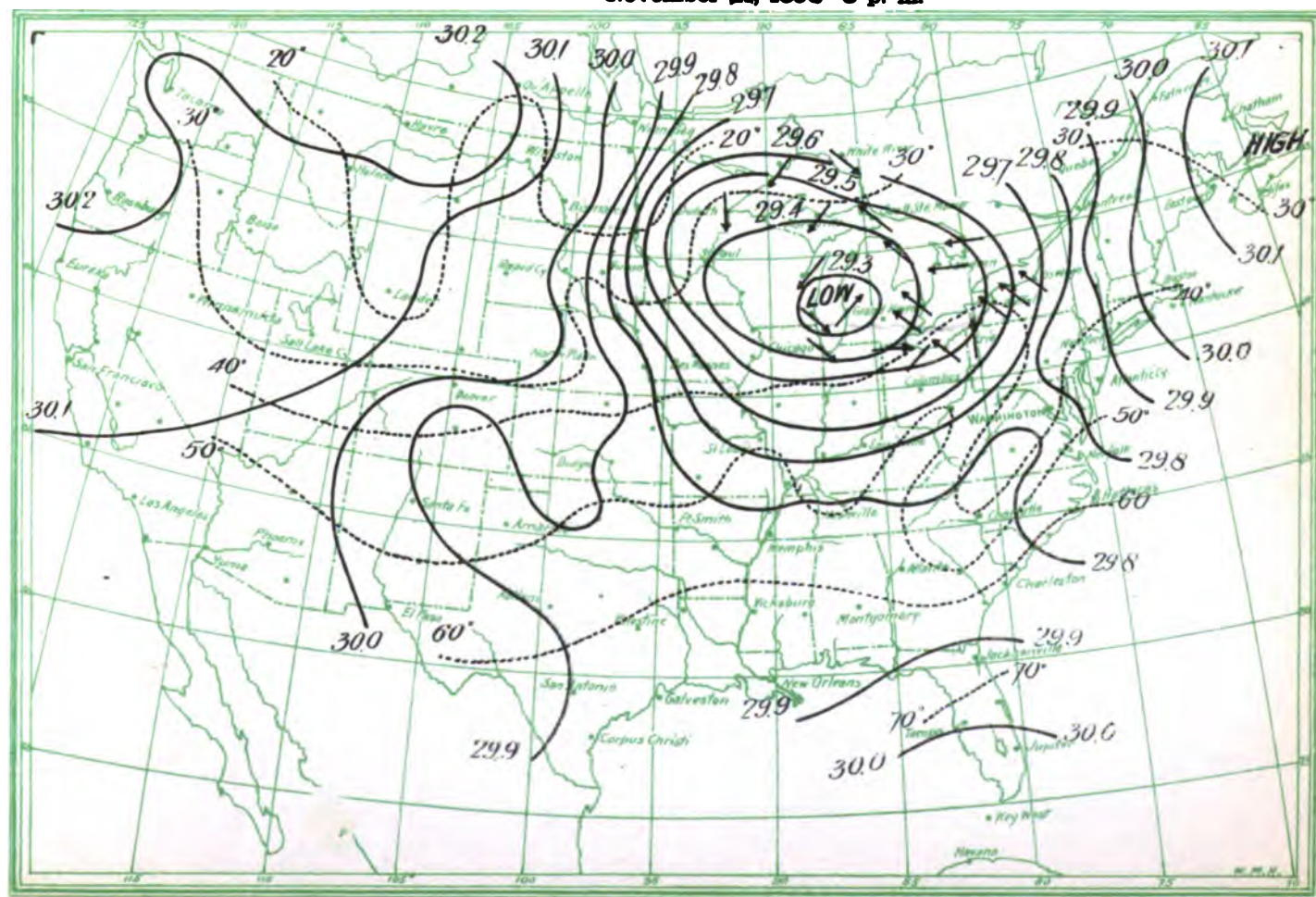


Chart DCCLXIII.

November 22, 1893—8 a. m.

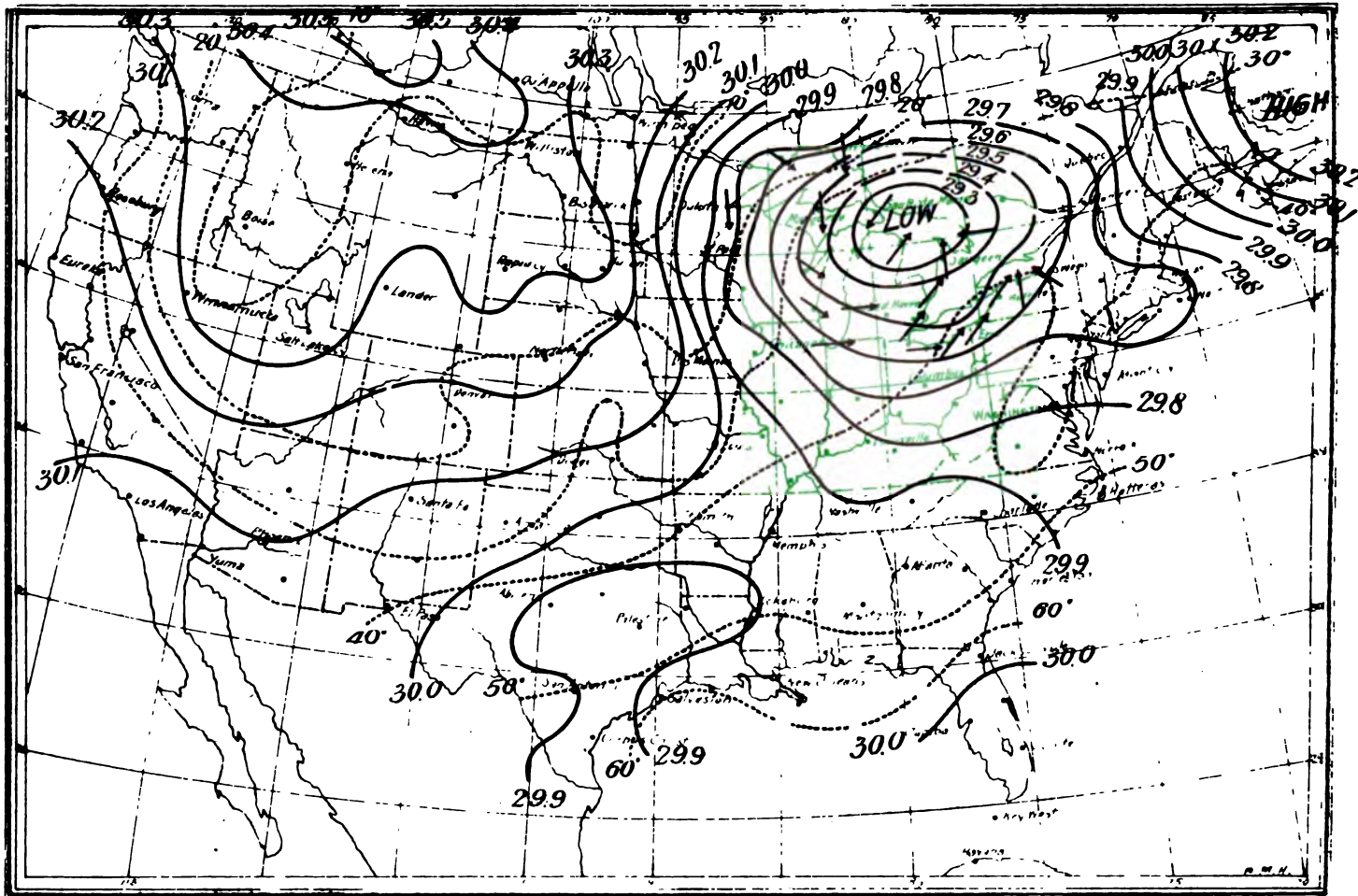


Chart DCCLXIV.

November 22, 1893—8 p. m.

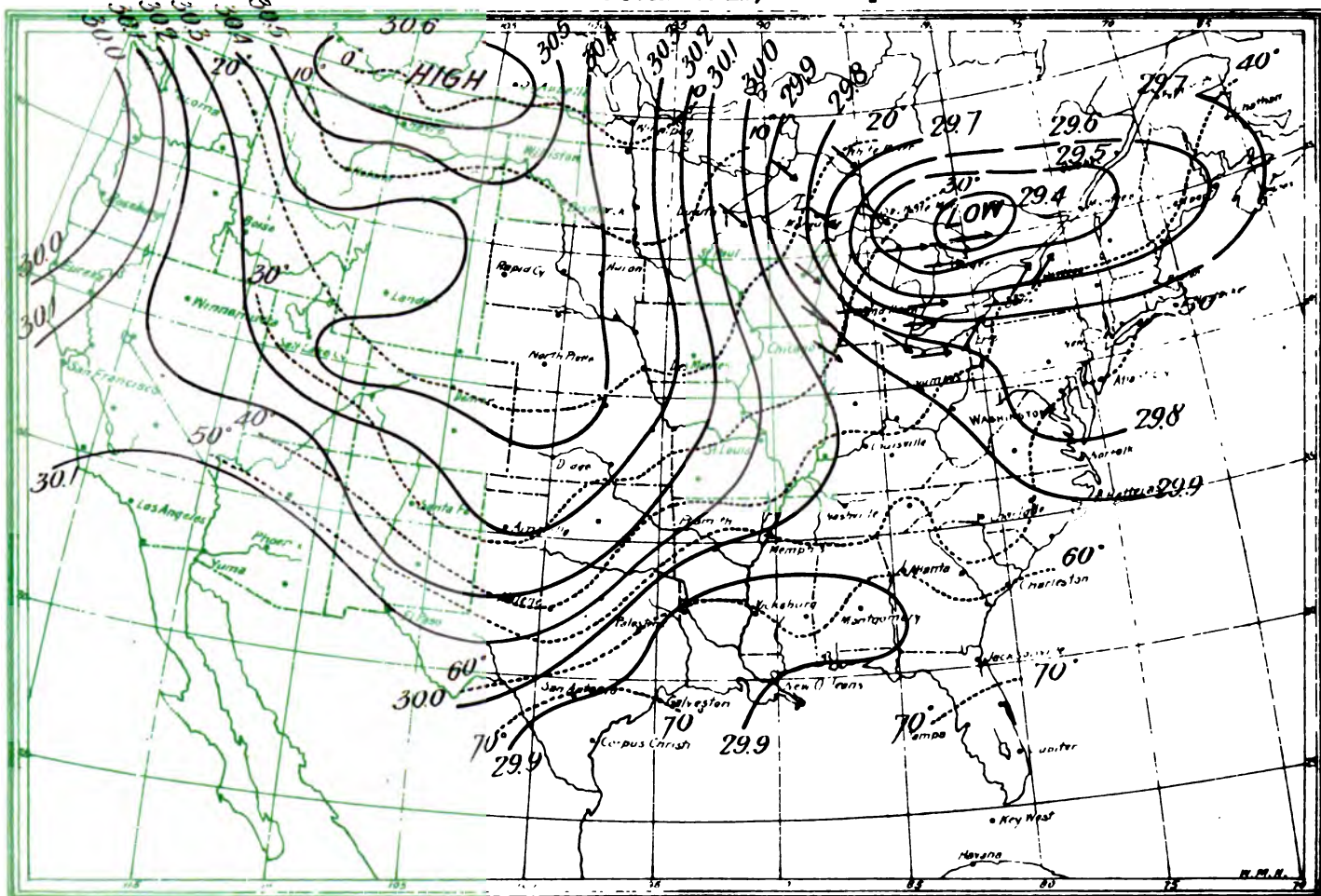


Chart DCCLXV.

November 1, 1894—8 a. m.

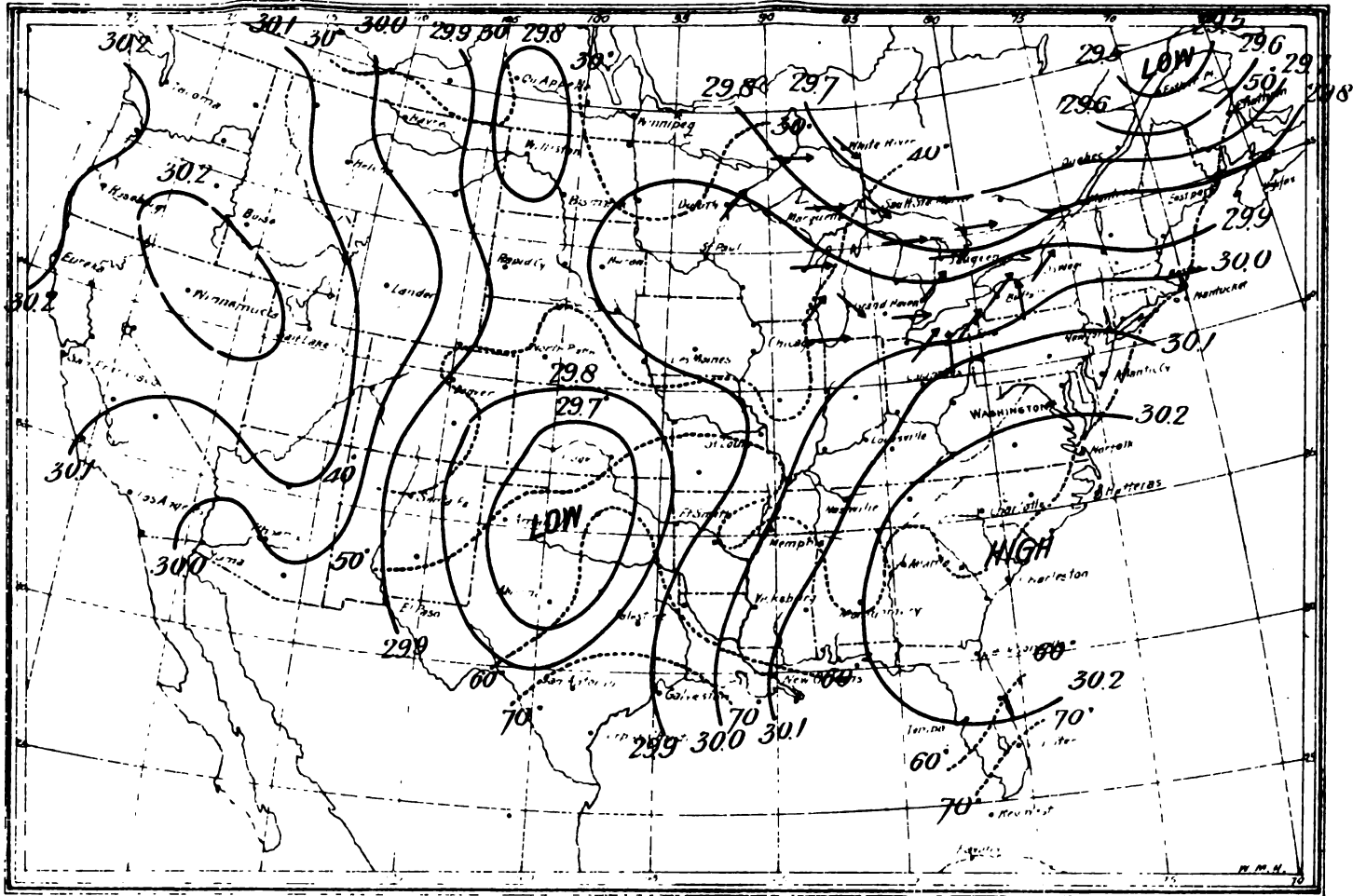
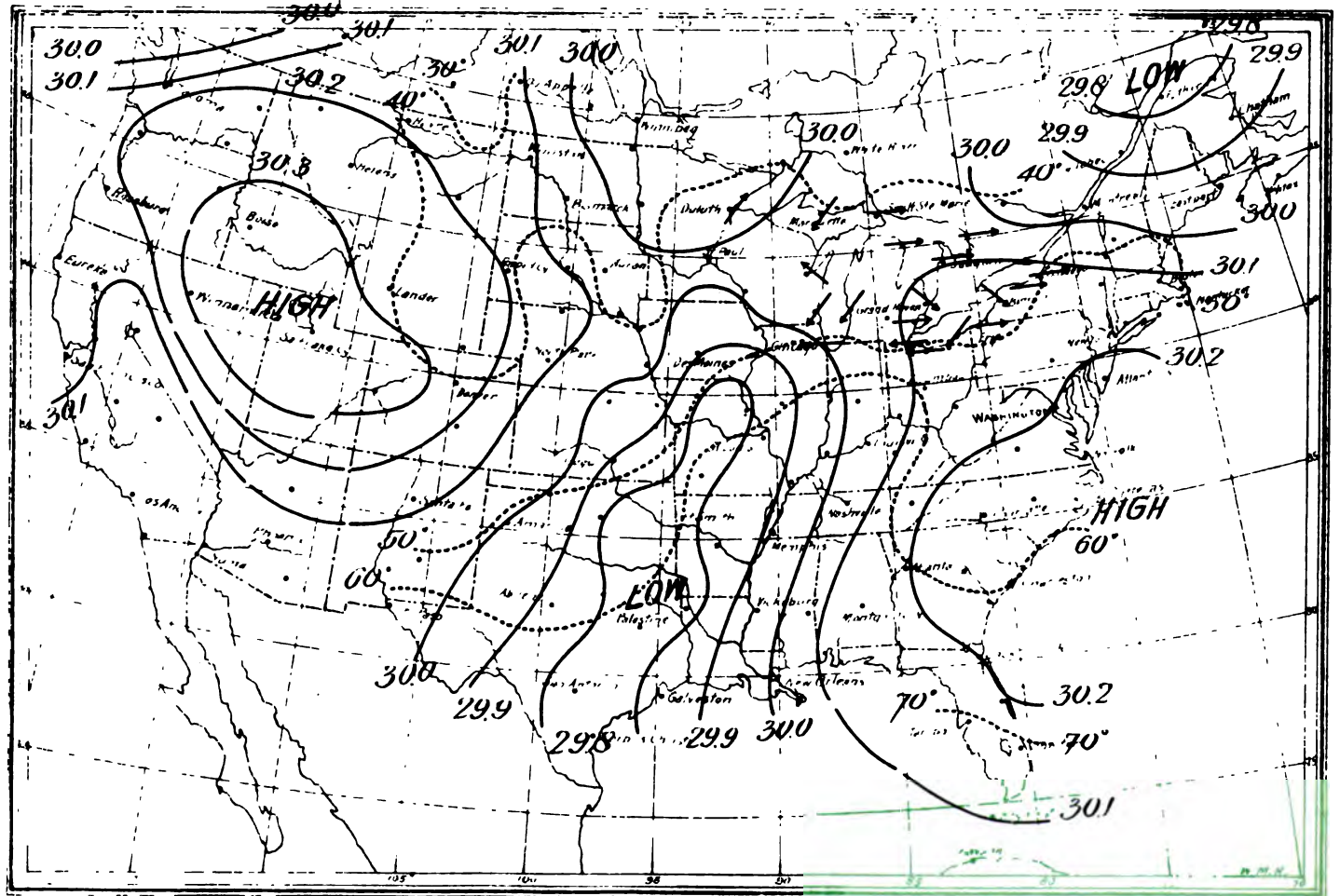


Chart DCCLXVI.

November 1, 1894—8 p. m.



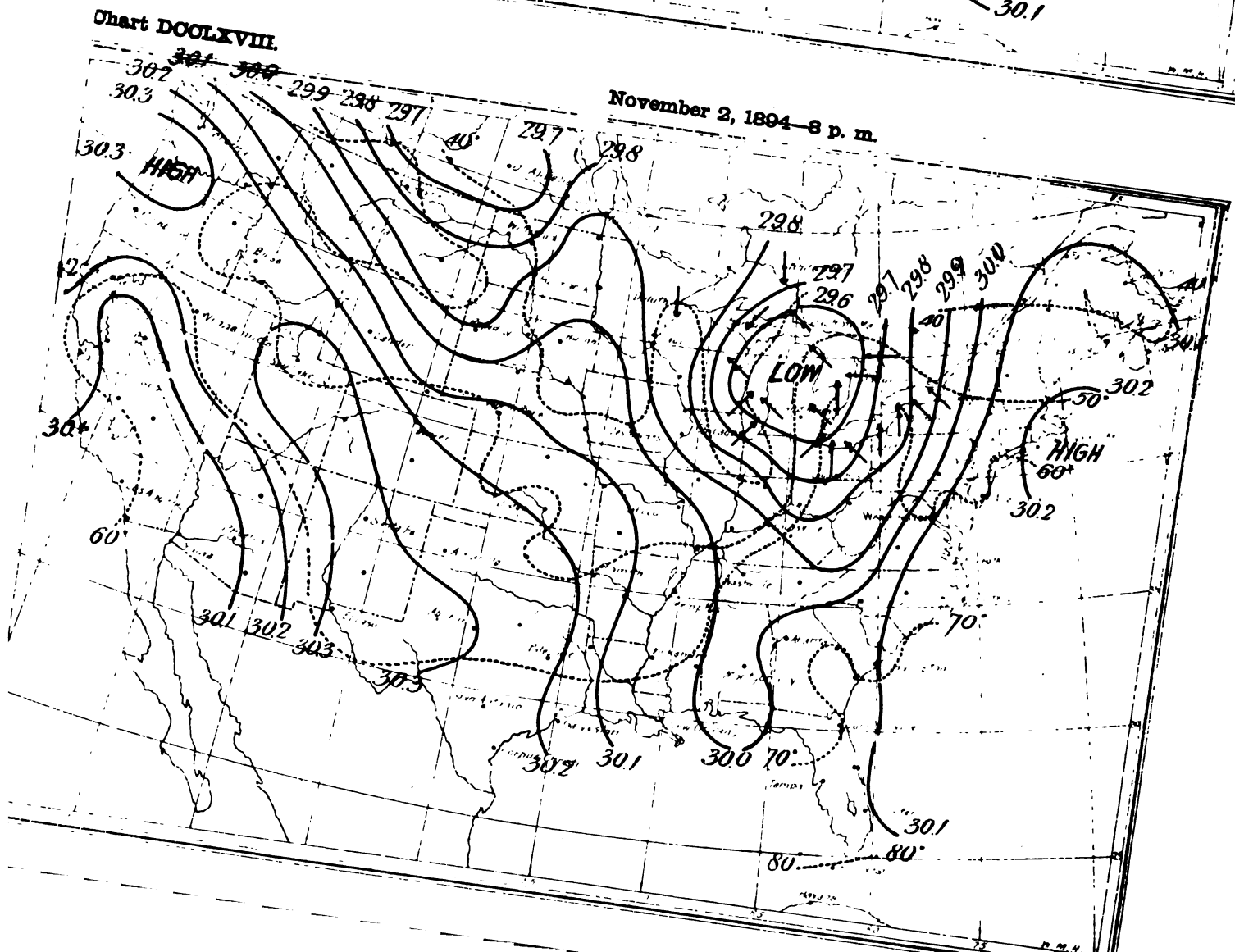
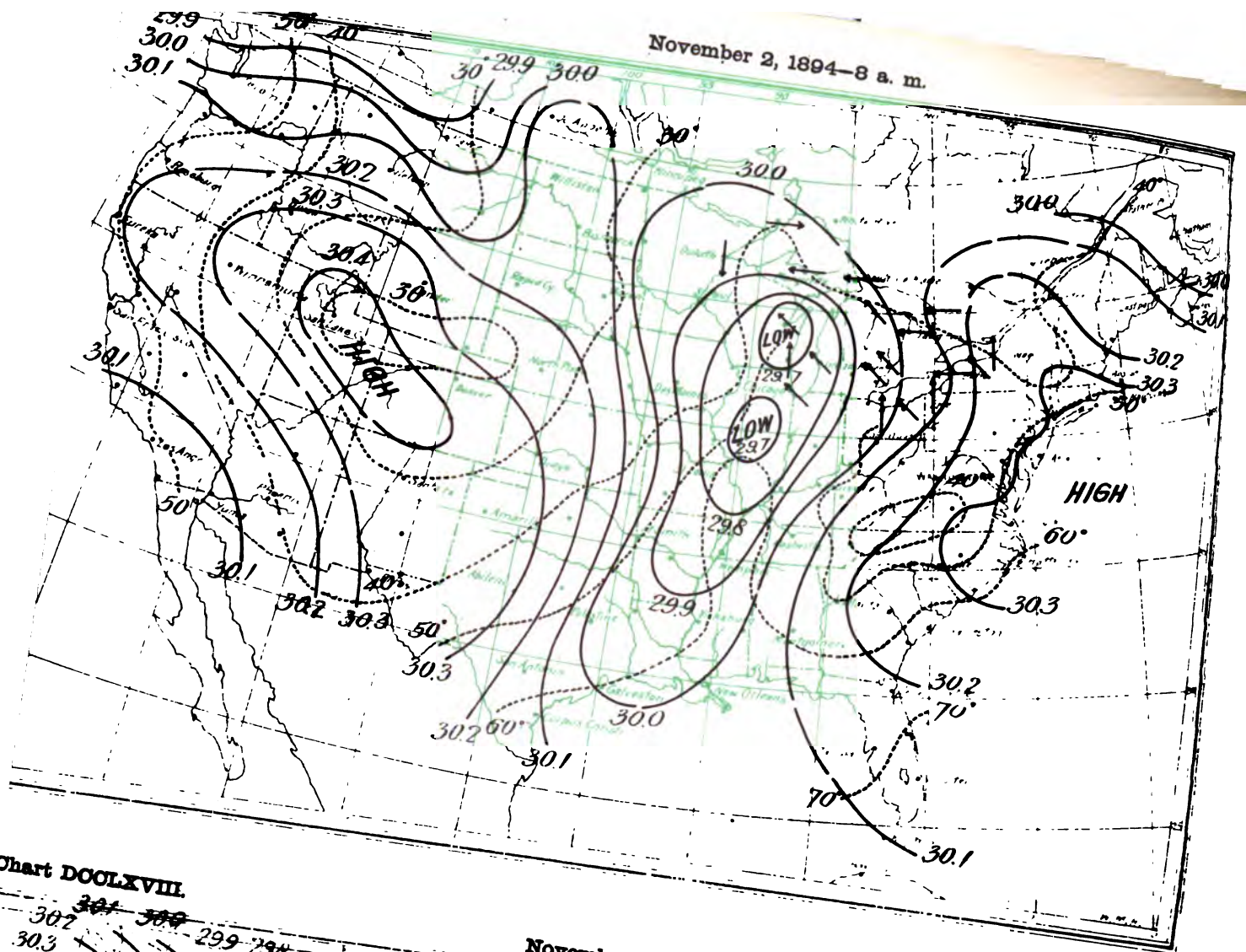


Chart DOCLXIX.

November 8, 1894—8 p. m.

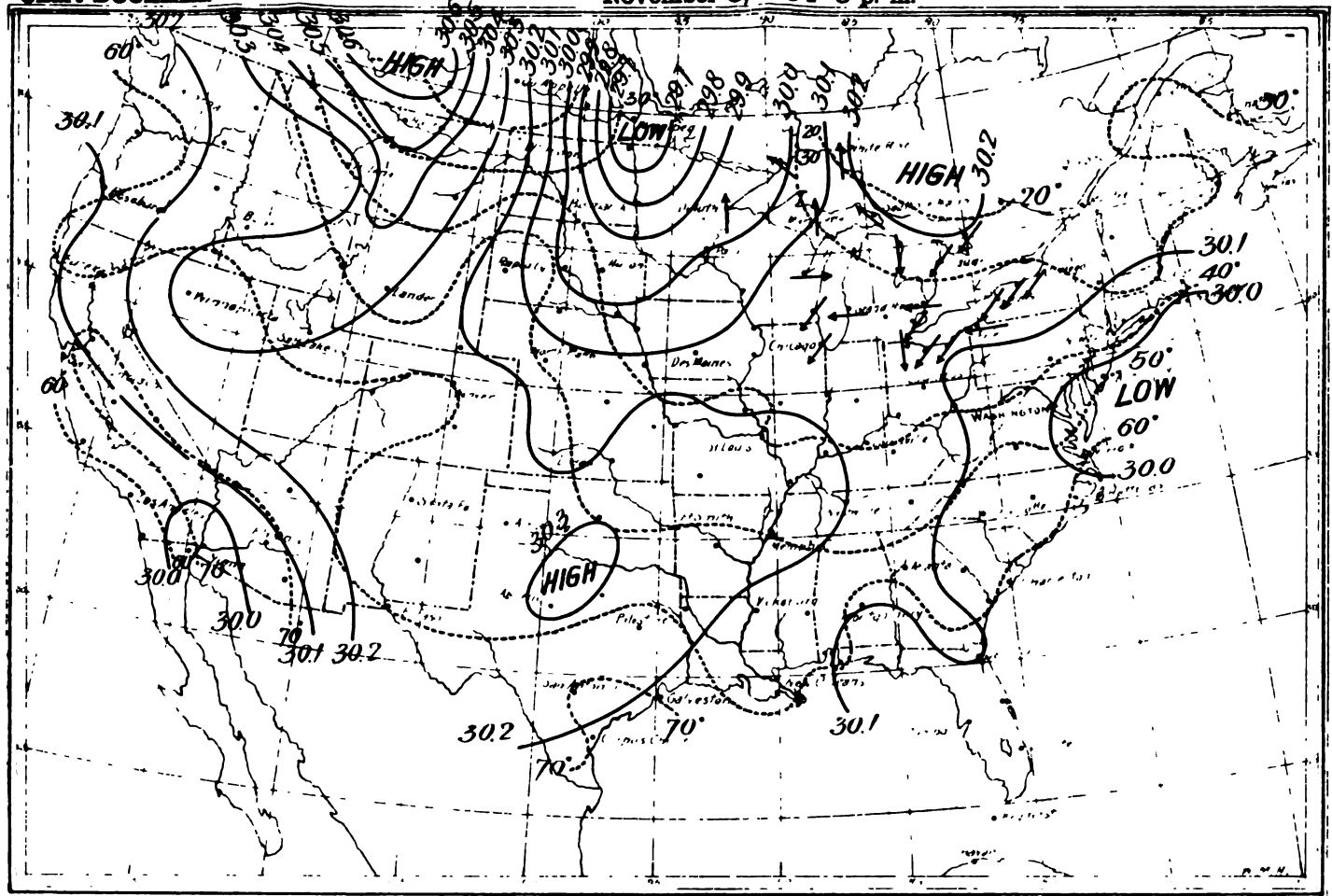


Chart DOCLXX.

November 9, 1894—8 a. m.

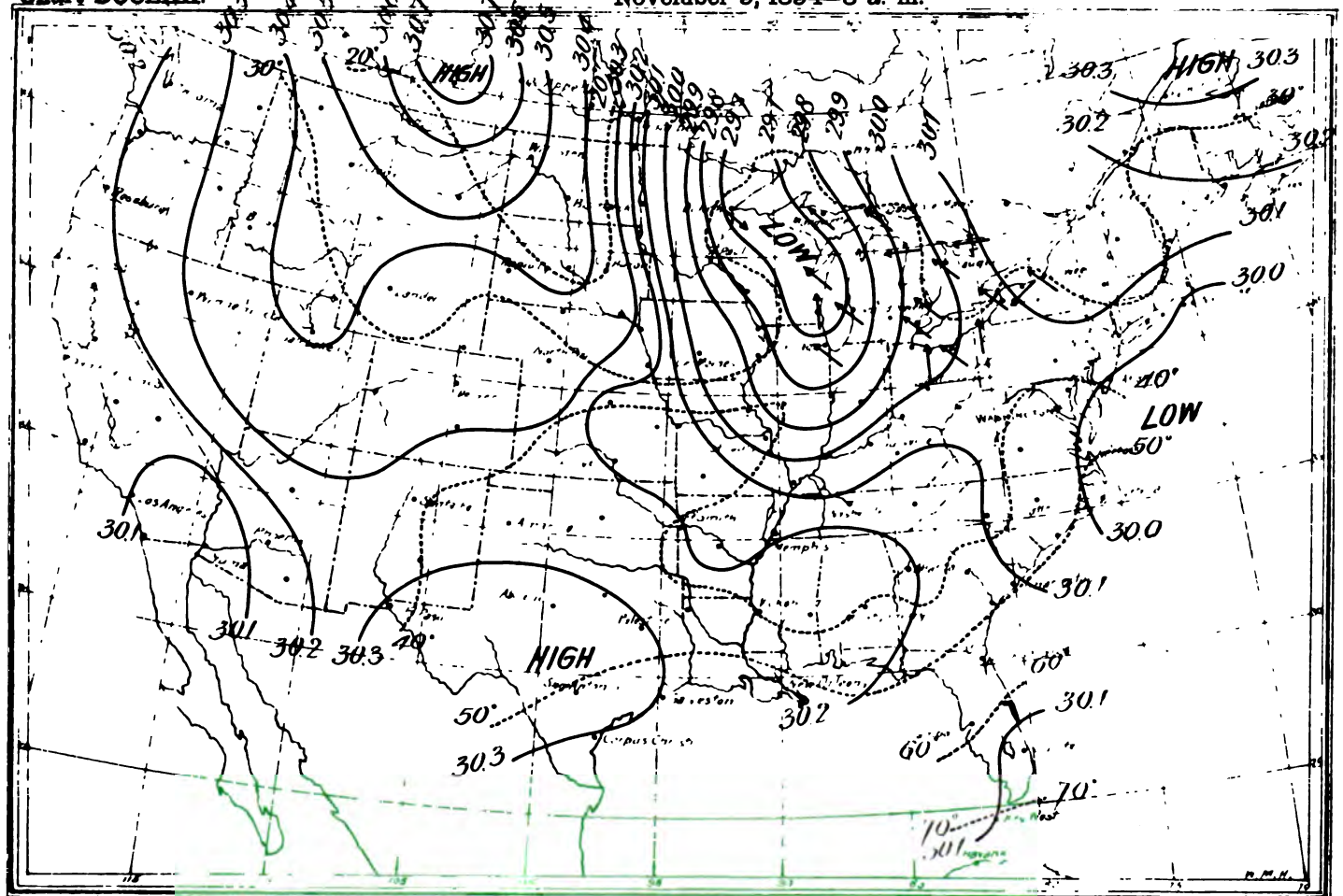


Chart DOOLXXI.

November 9, 1894—8 p. m.

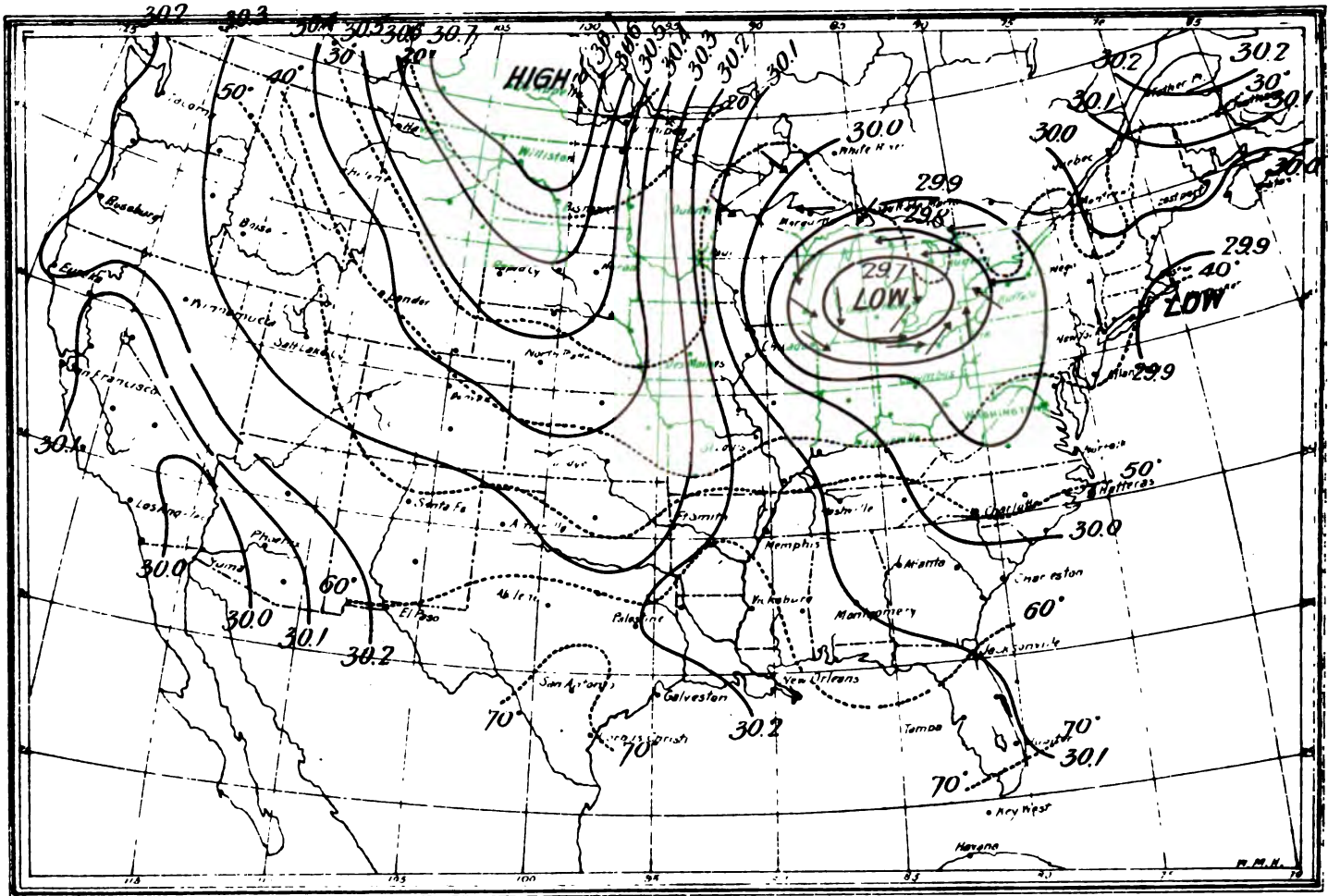


Chart DOOLXXII.

November 10, 1894—8 a. m.

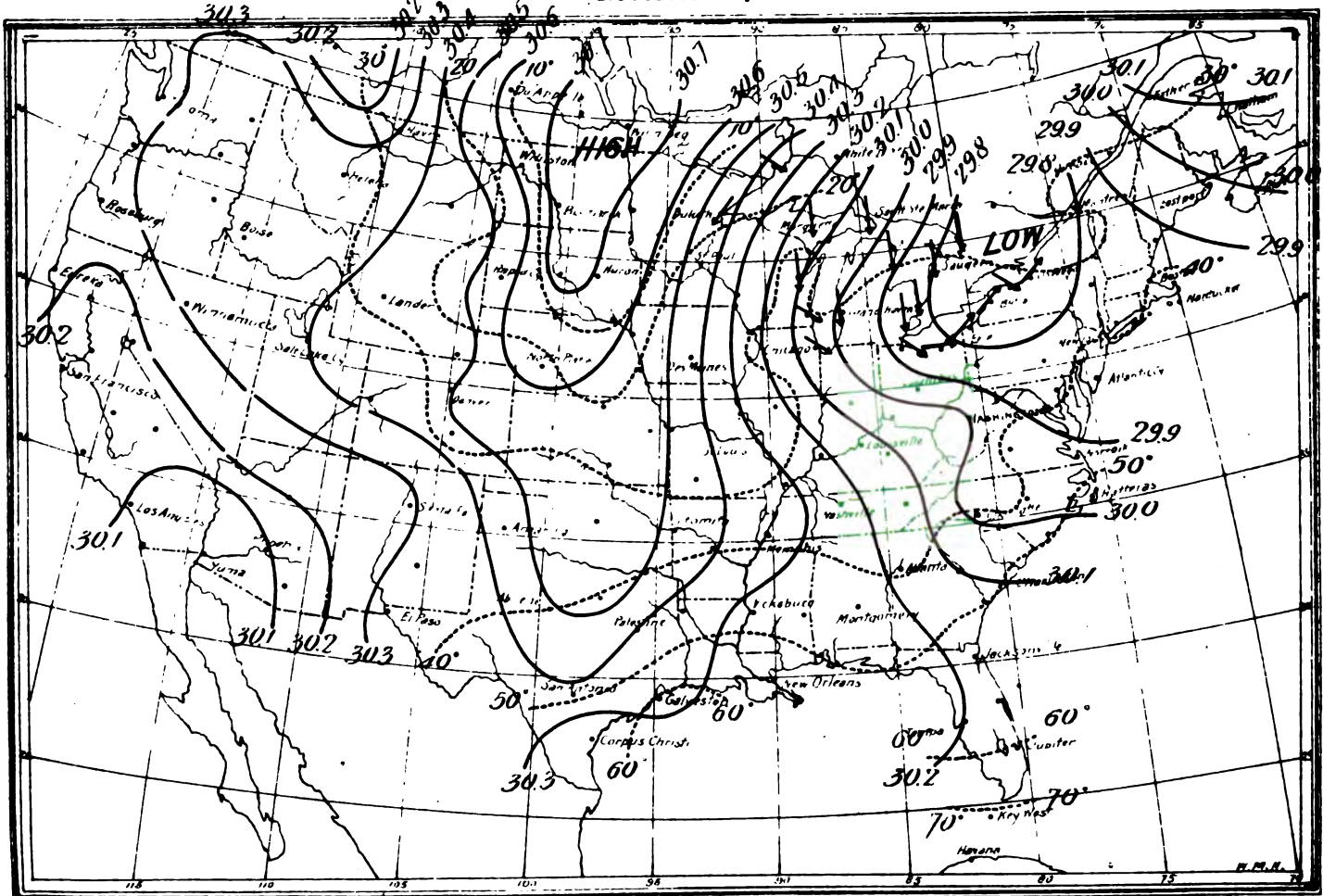


Chart DOOLXXIII.

November 25, 1894—8 a. m.

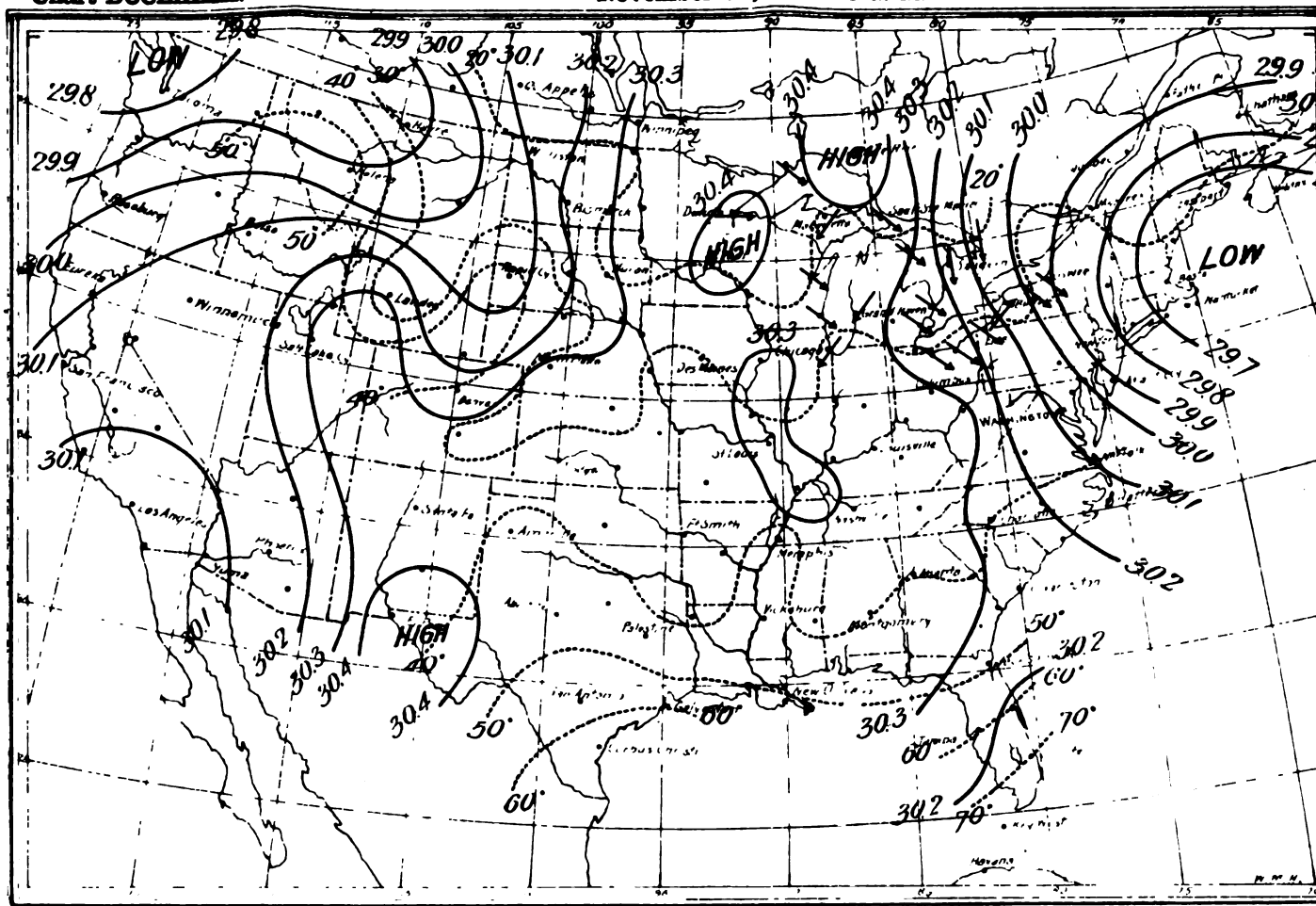
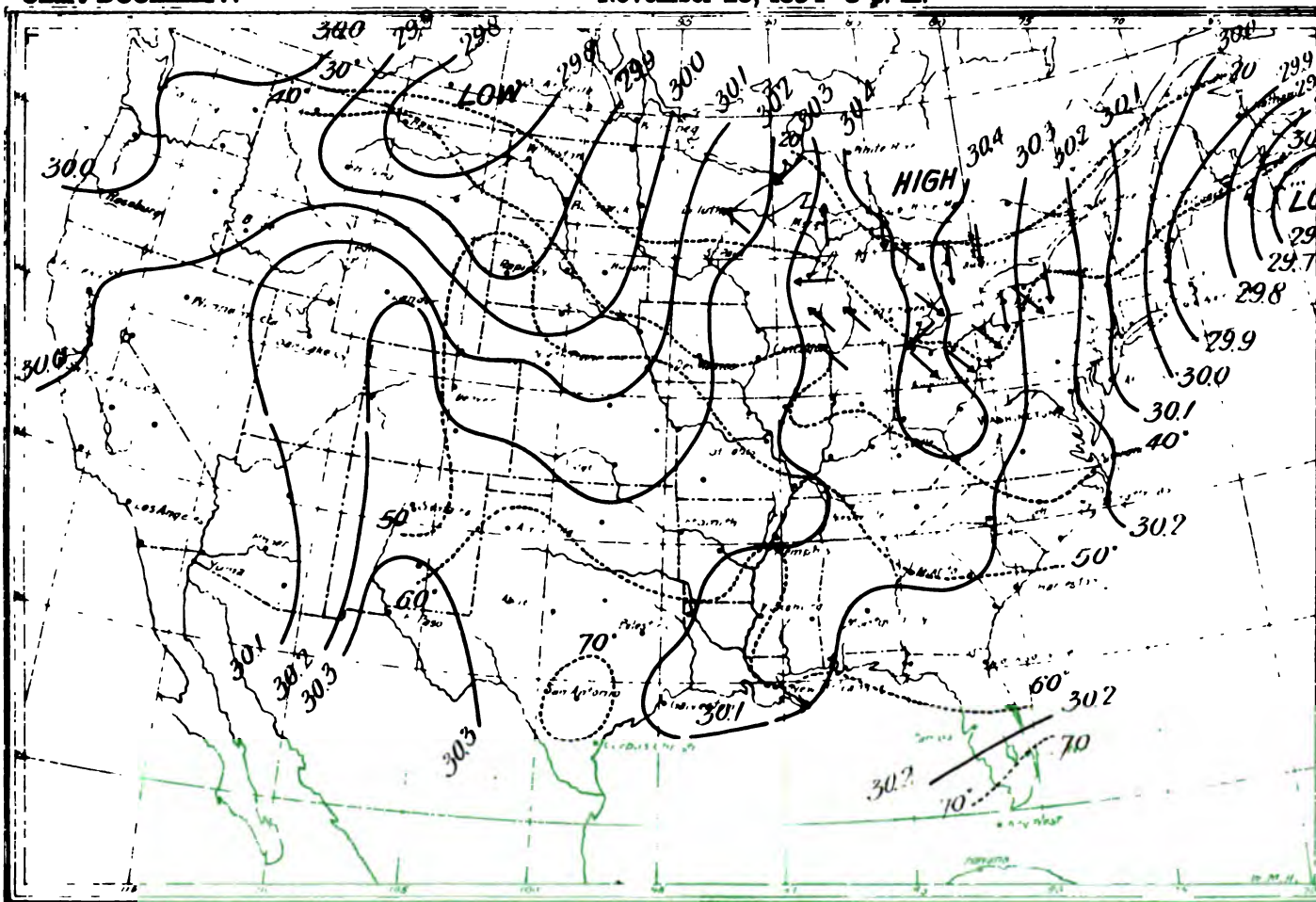


Chart DOOLXXIV.

November 25, 1894—8 p. m.



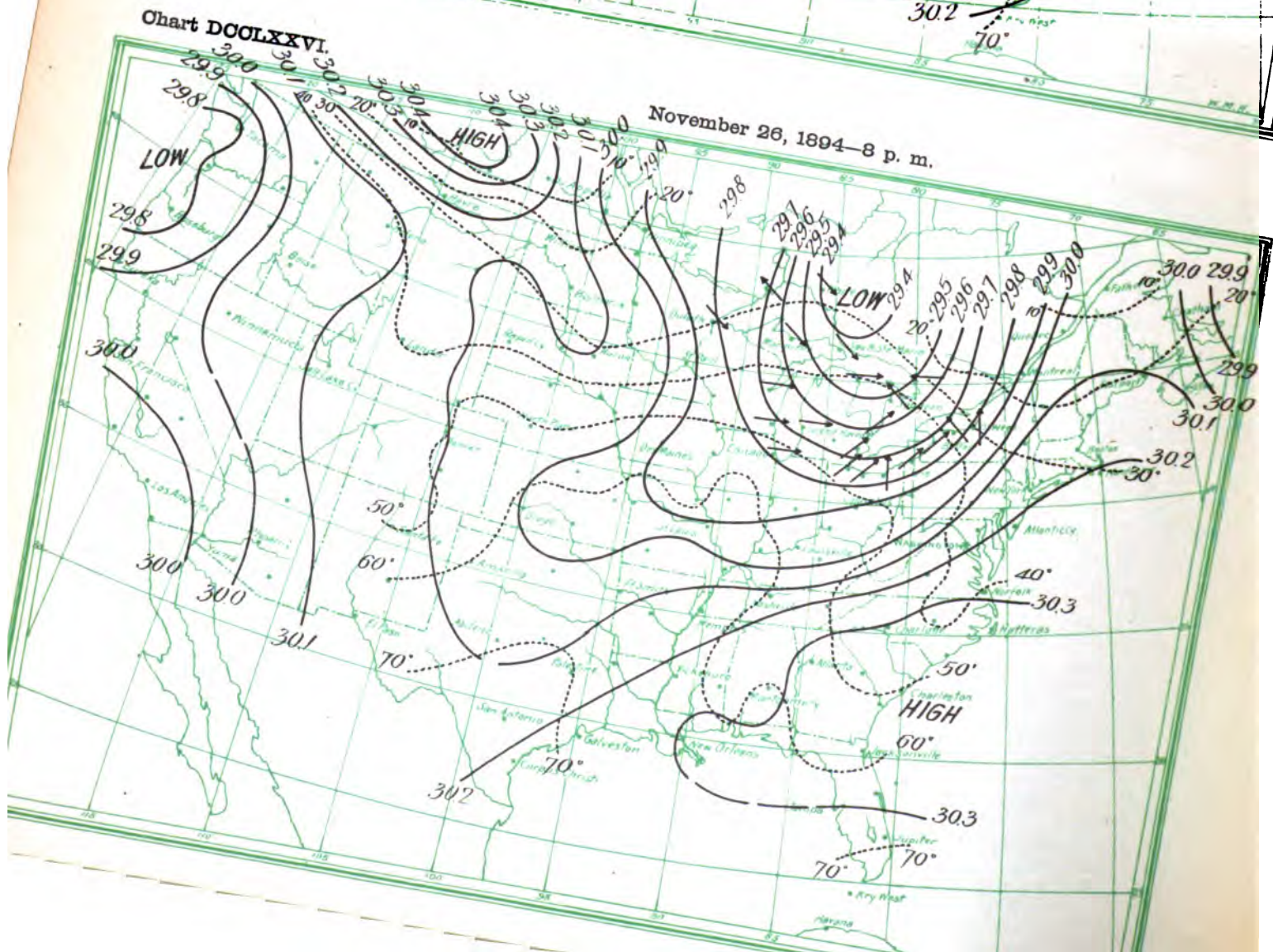
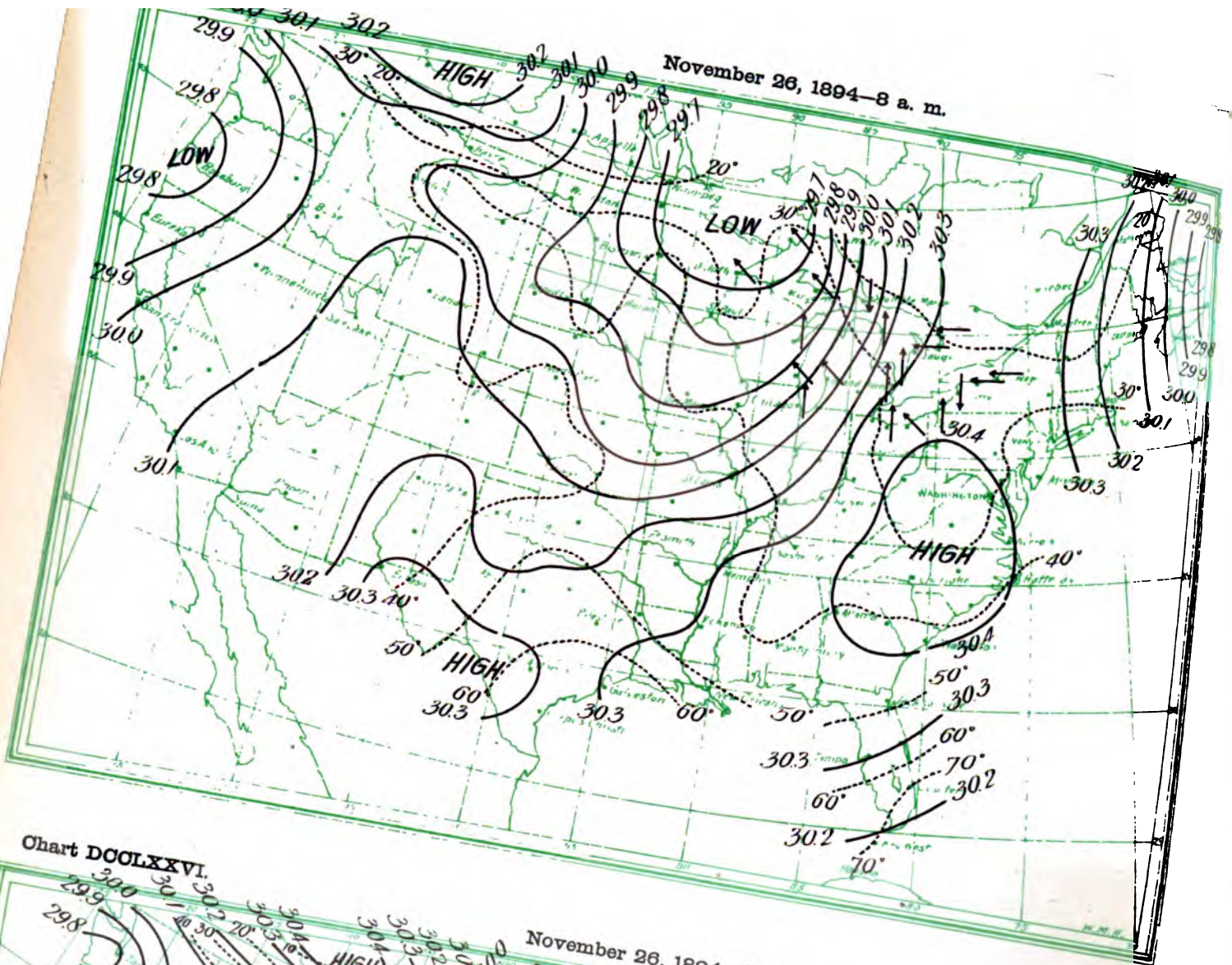


Chart DCCLXXVII.

November 24, 1895—8 p. m.

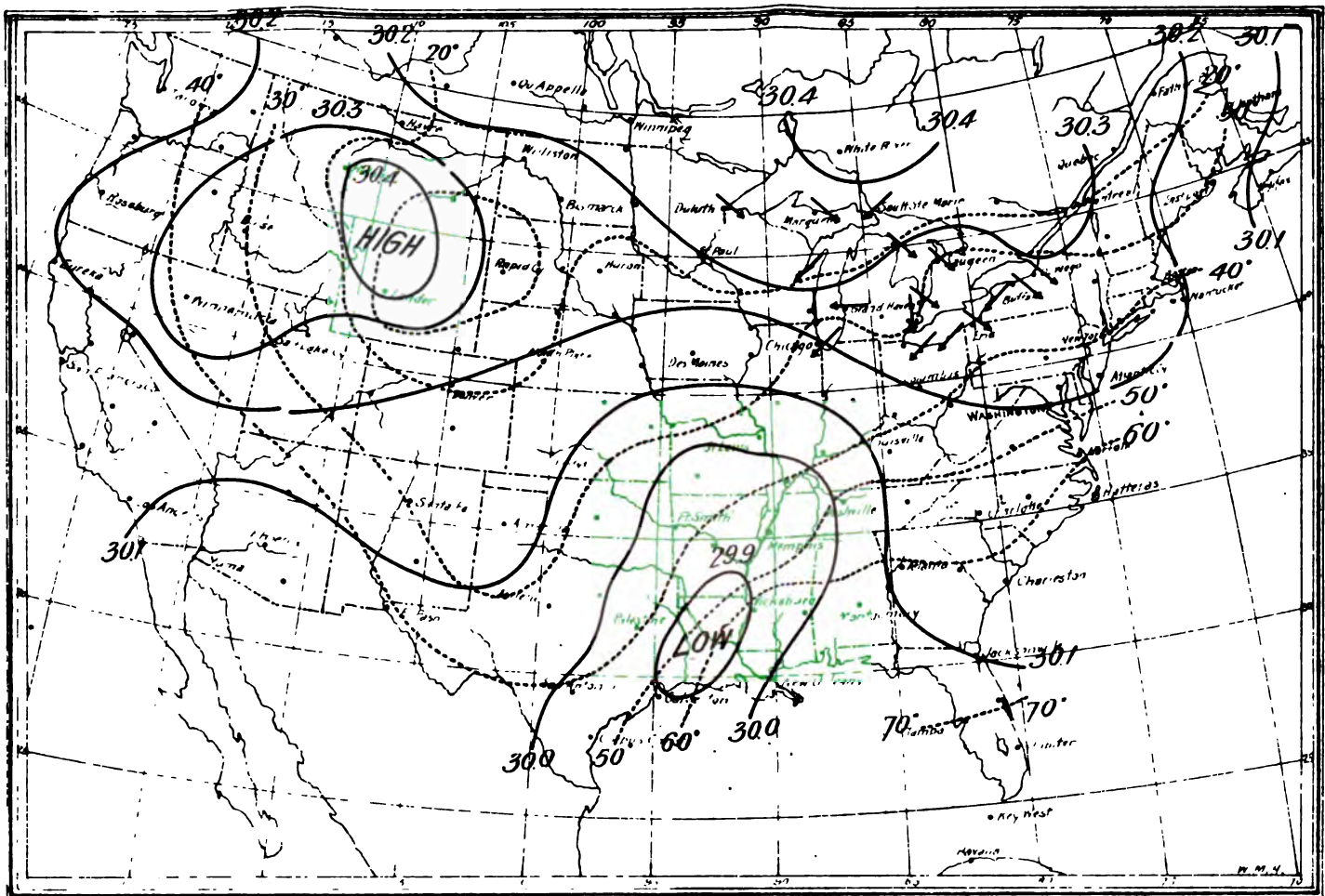


Chart DCCLXXVIII.

November 25, 1895—8 a. m.

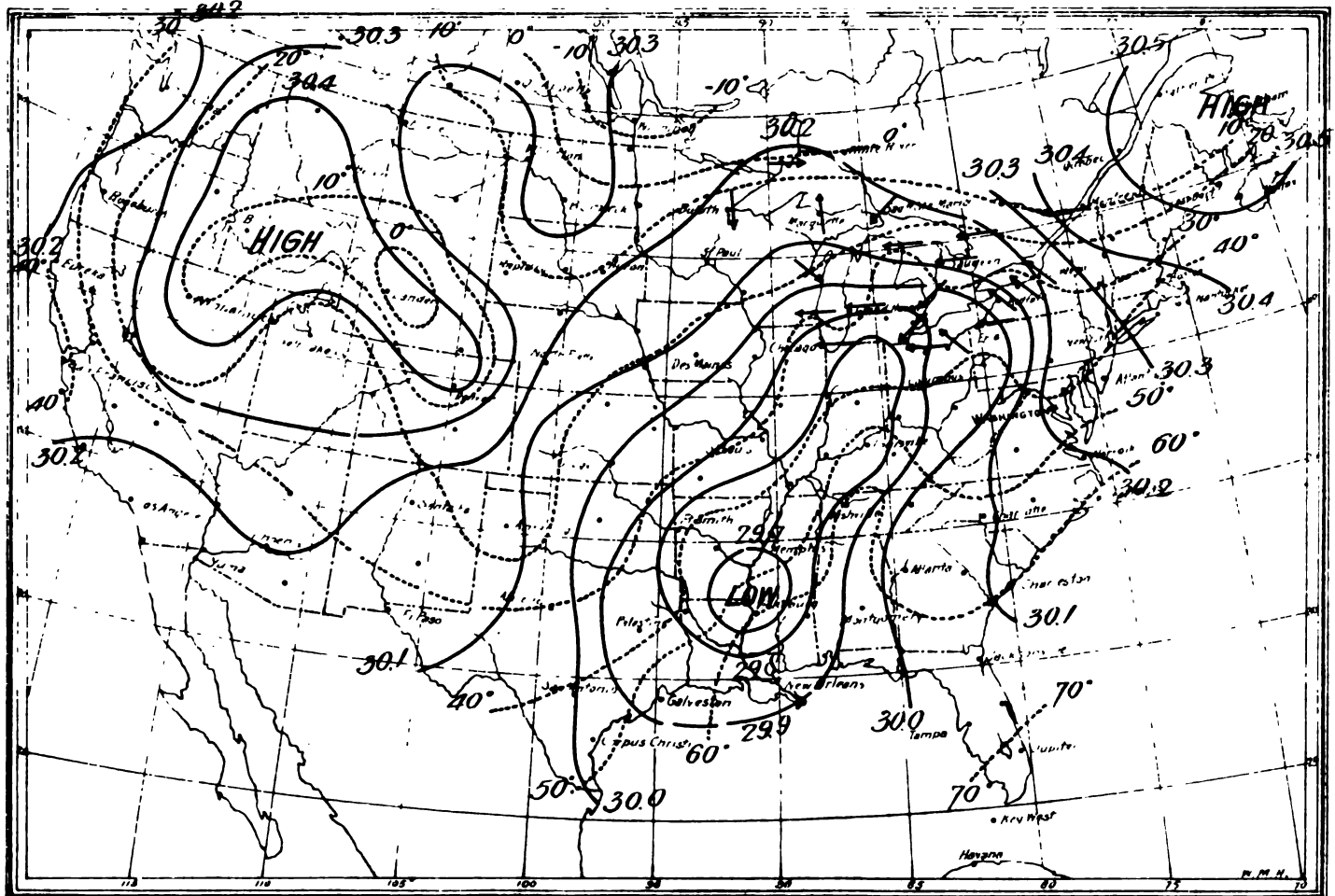


Chart DOOLXXIX.

November 25, 1895—8 p. m.

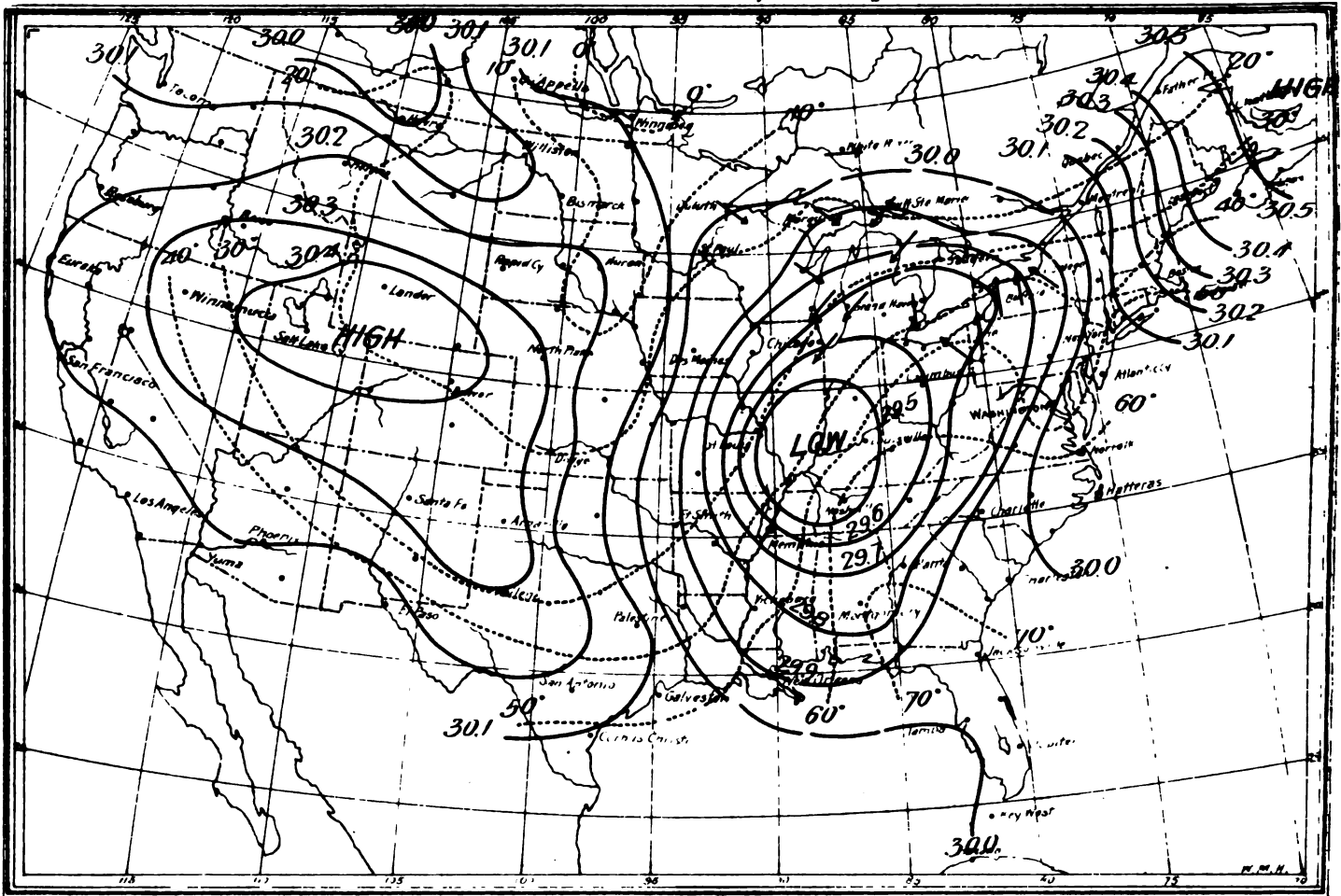


Chart DOOLXXX.

November 26, 1895—8 a. m.

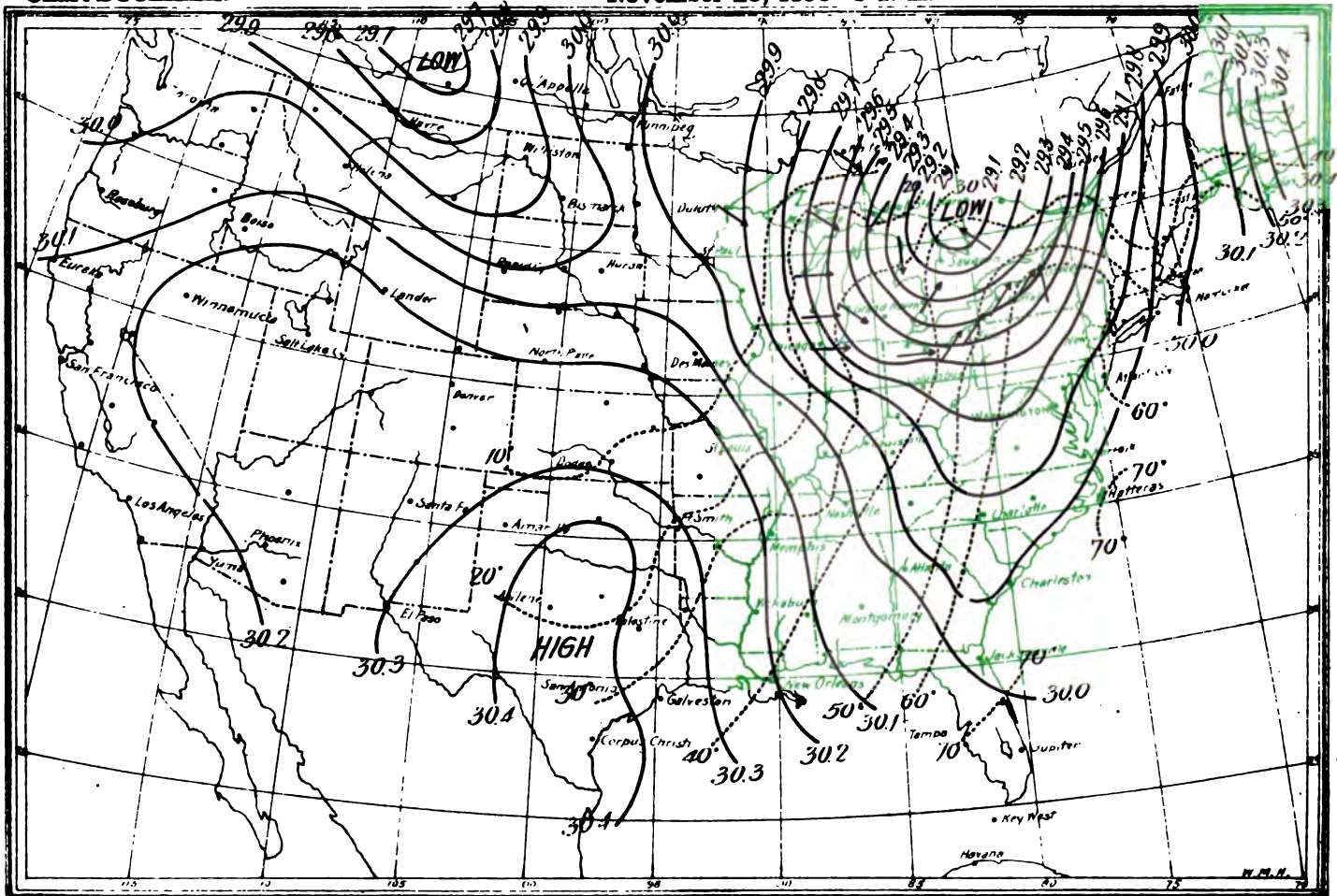


Chart DOOLXXXI.

November 2, 1896—8 a. m.

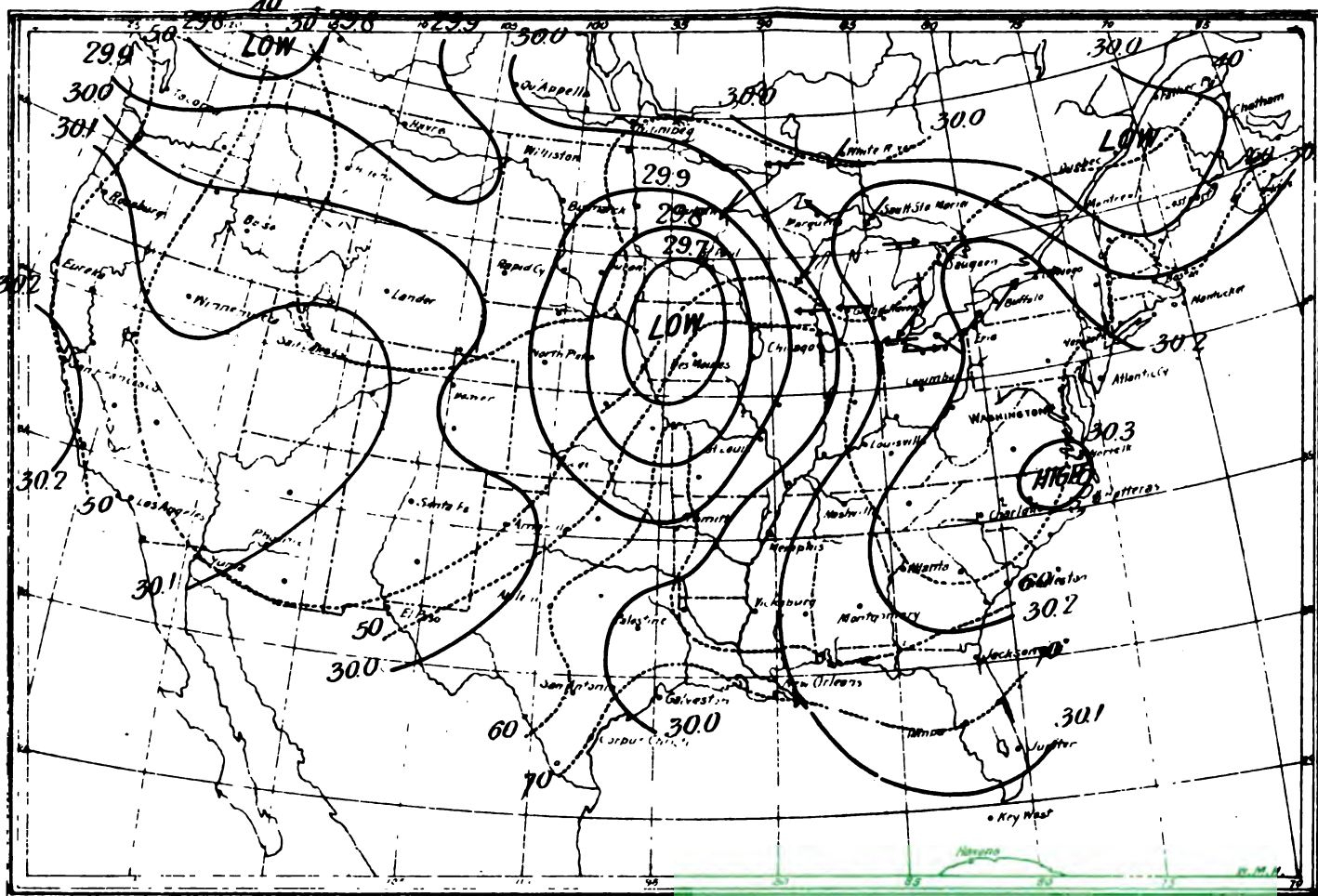
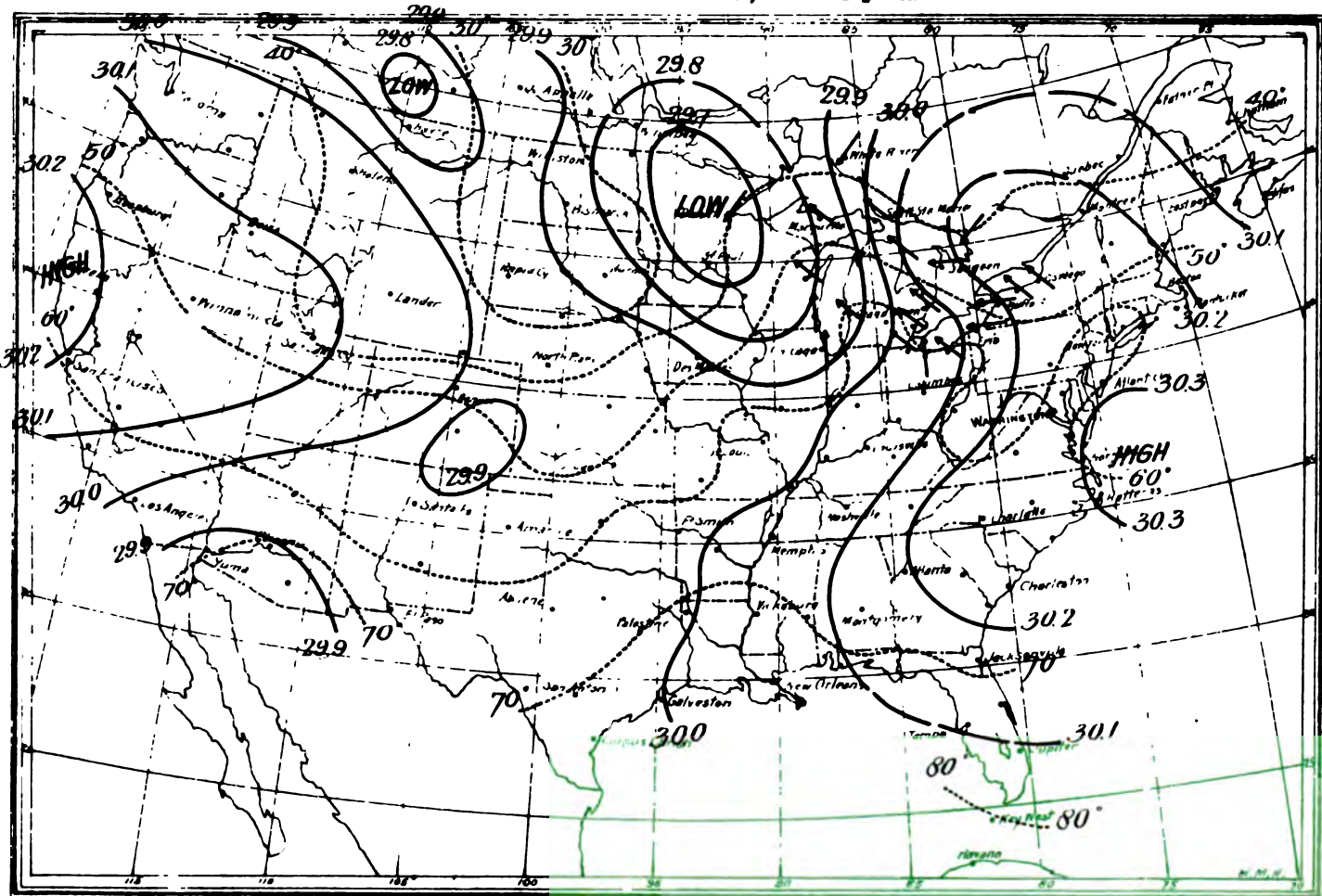


Chart DOOLXXXII.

November 2, 1896—8 p. m.



DCOLXXXIII.

November 3, 1896—8 a. m.

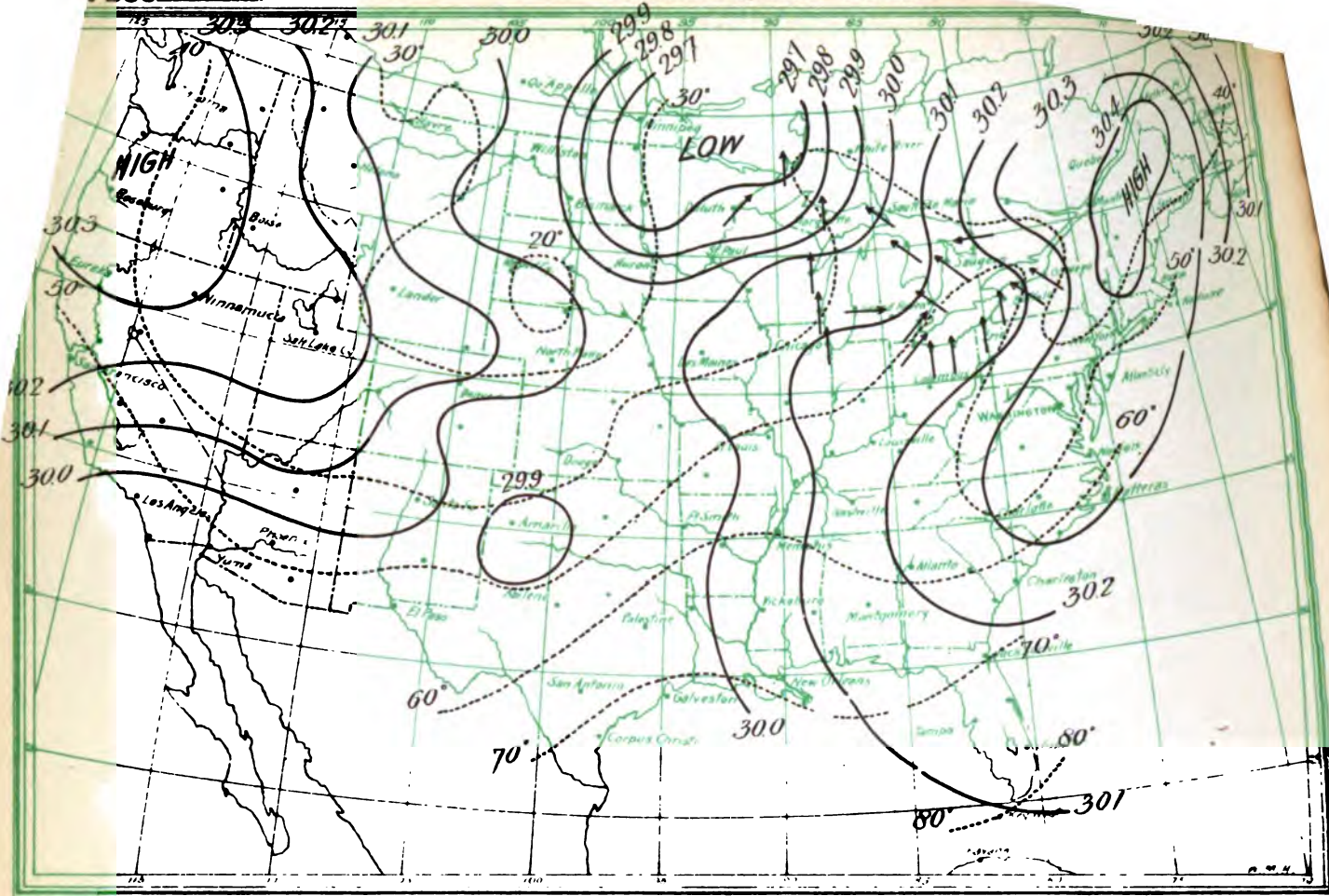


Chart DCOLXXXIV.

November 3, 1896—8 p. m.

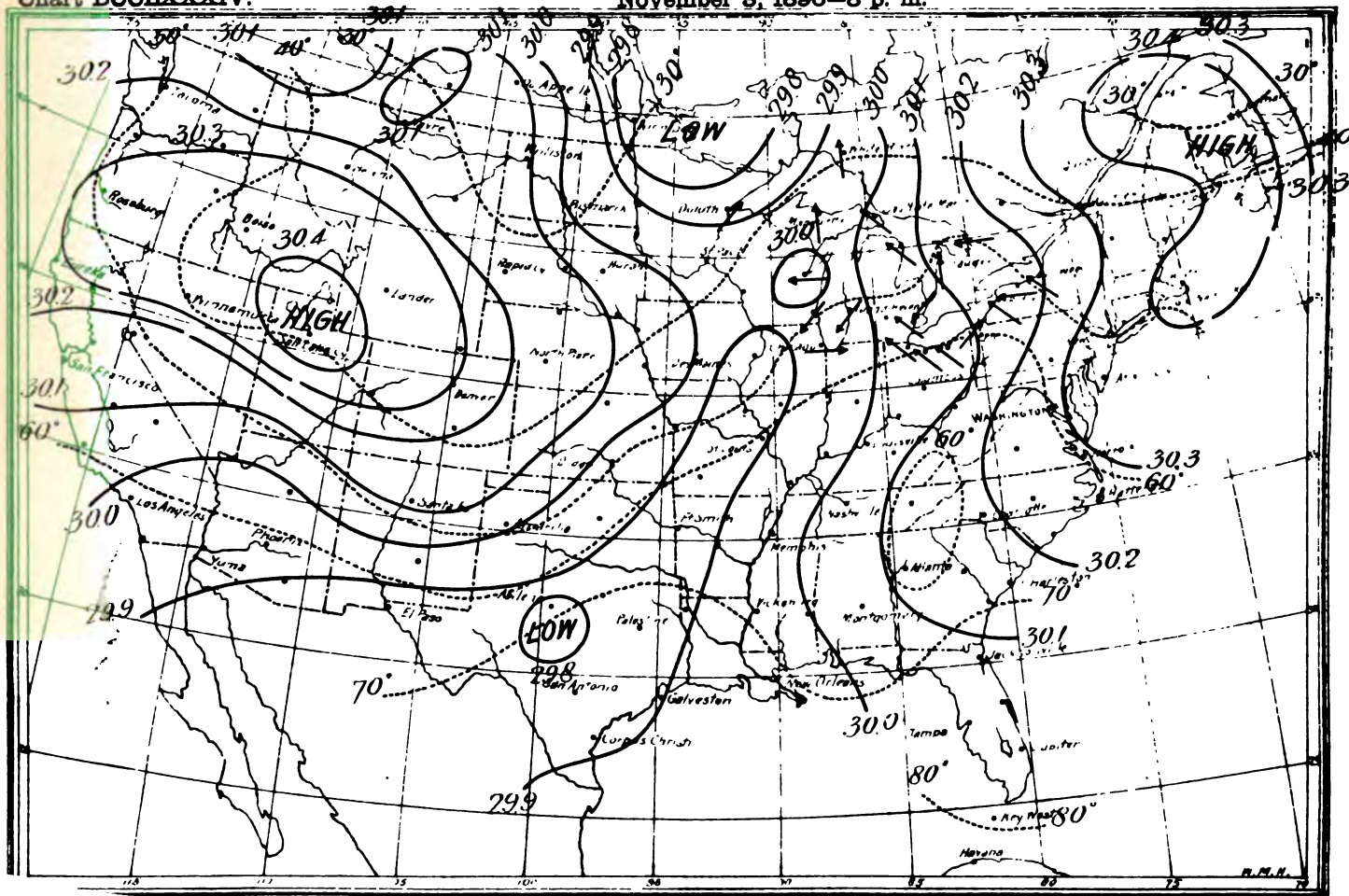


Chart DOOLXXXV.

November 4, 1896—8 a. m.

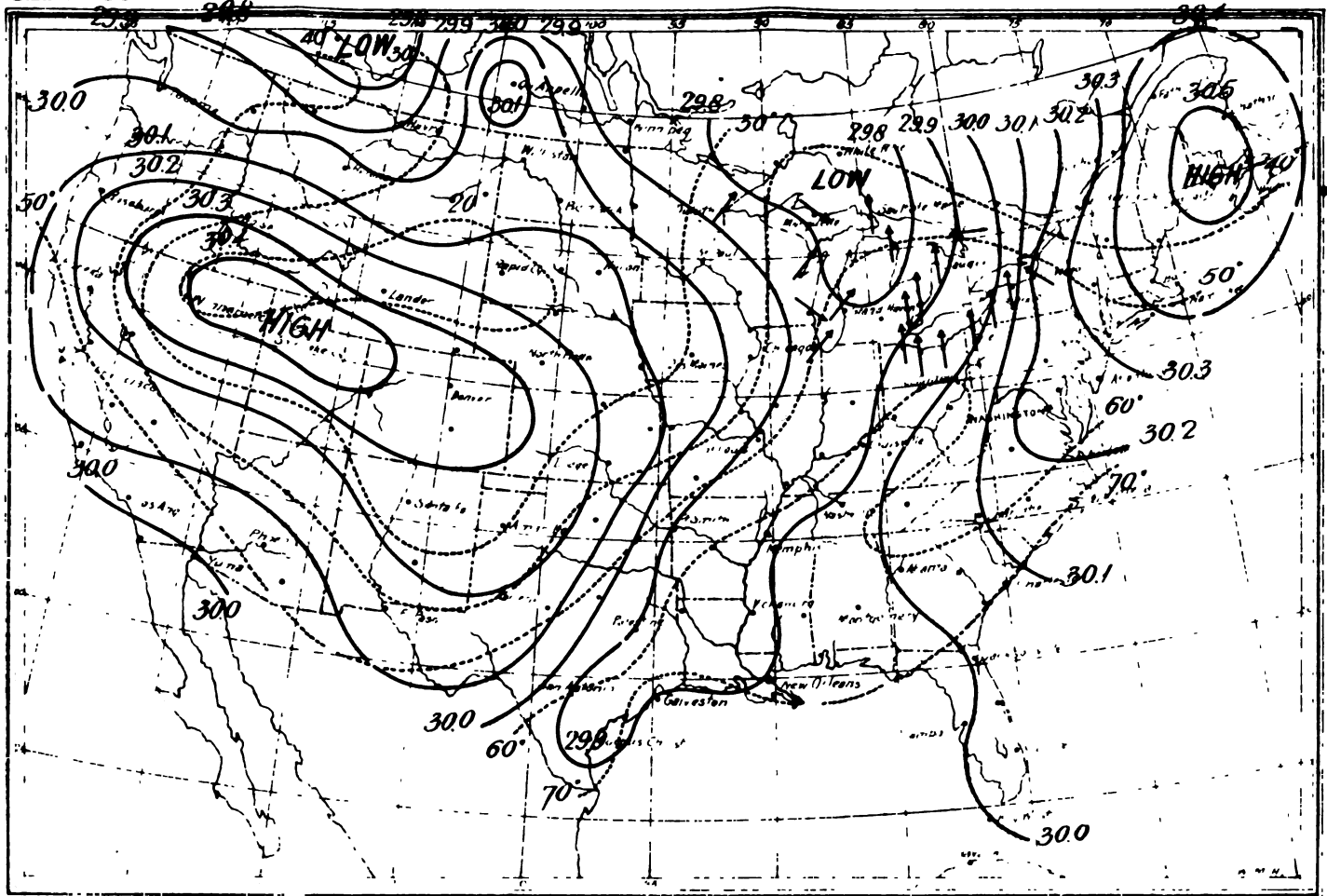


Chart DOOLXXXVI.

November 4, 1896—8 p. m.

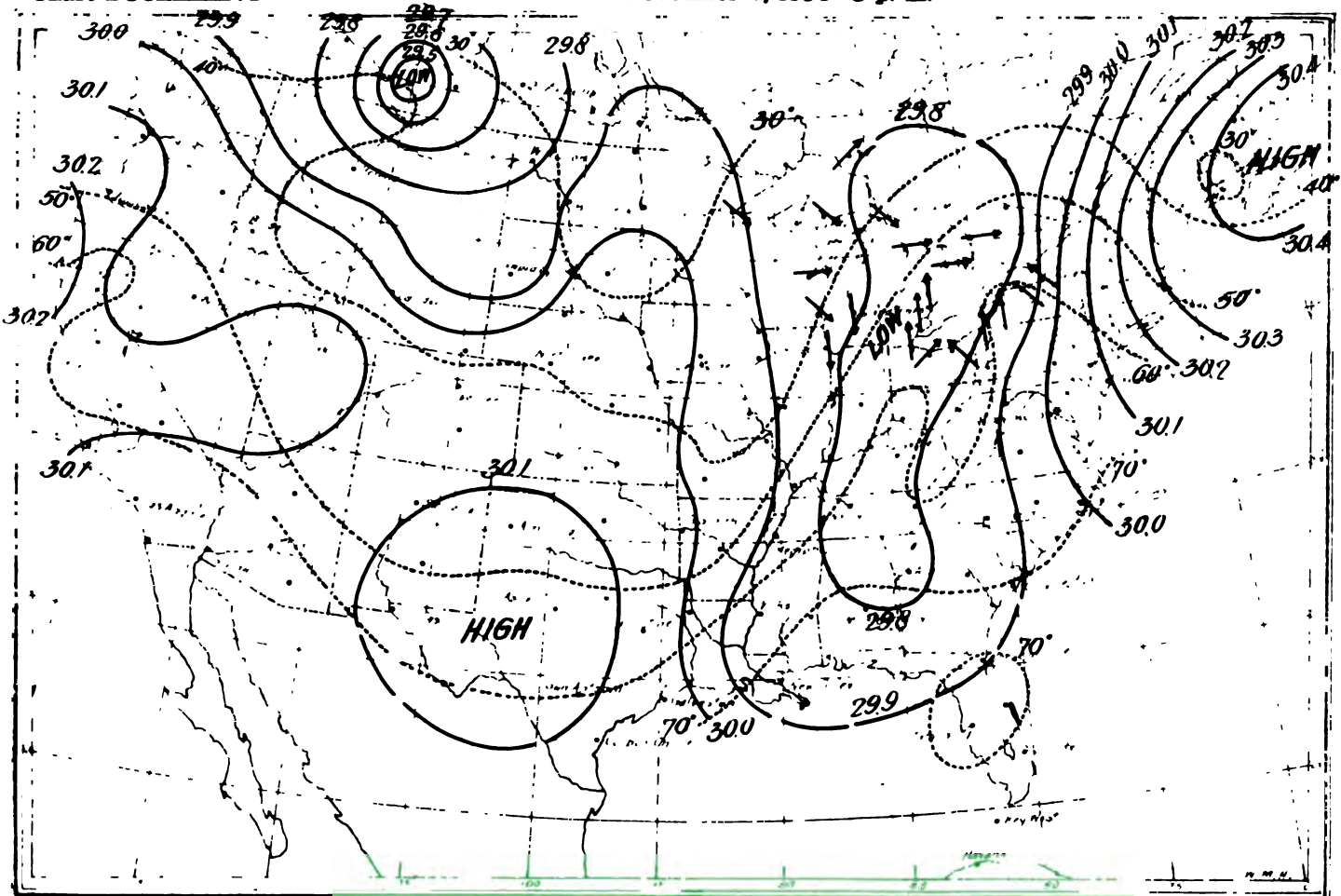


Chart DCCLXXXVII.

November 5, 1896—8 a. m.

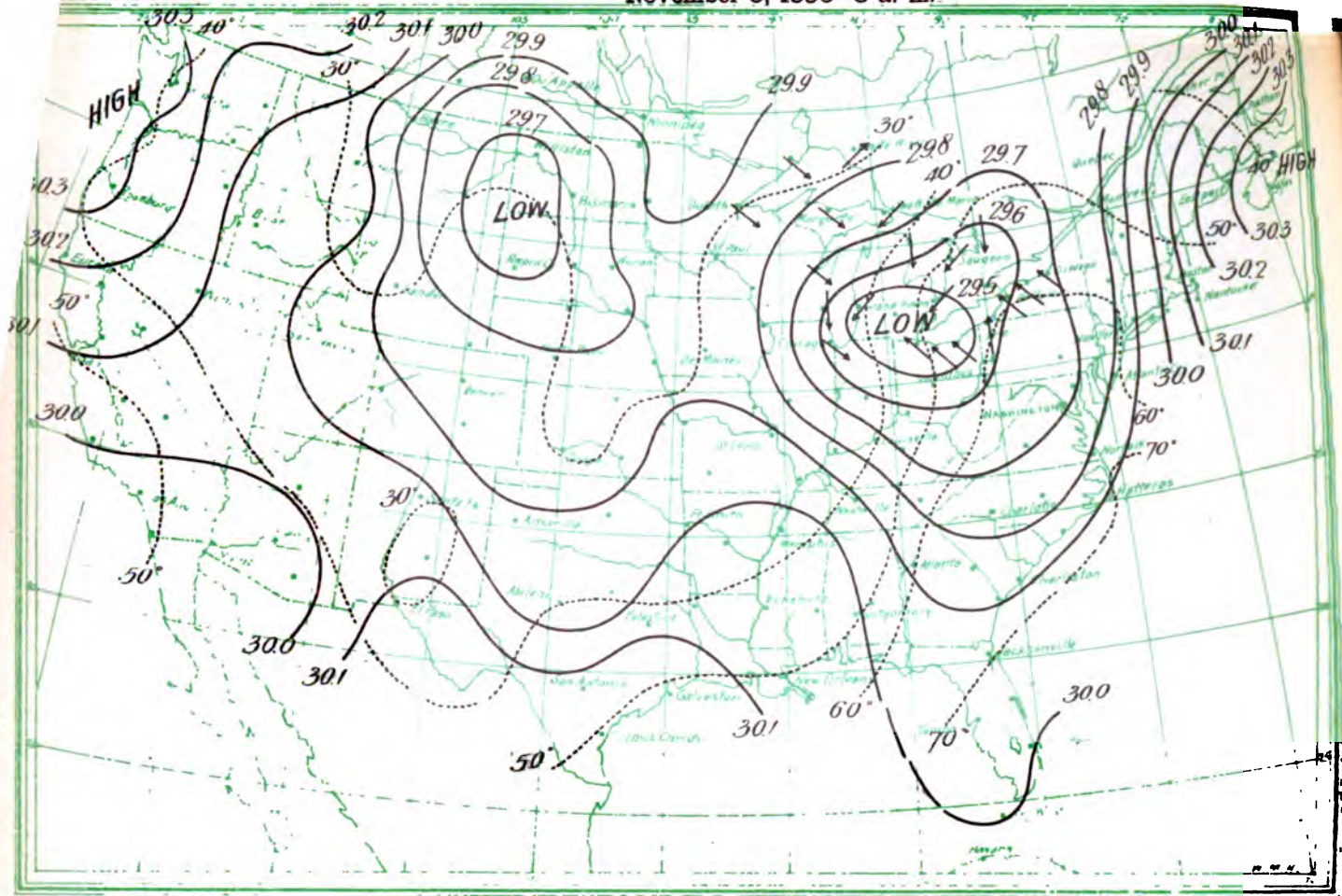


Chart DCCLXXXVIII.

November 5, 1896—8 p. m.

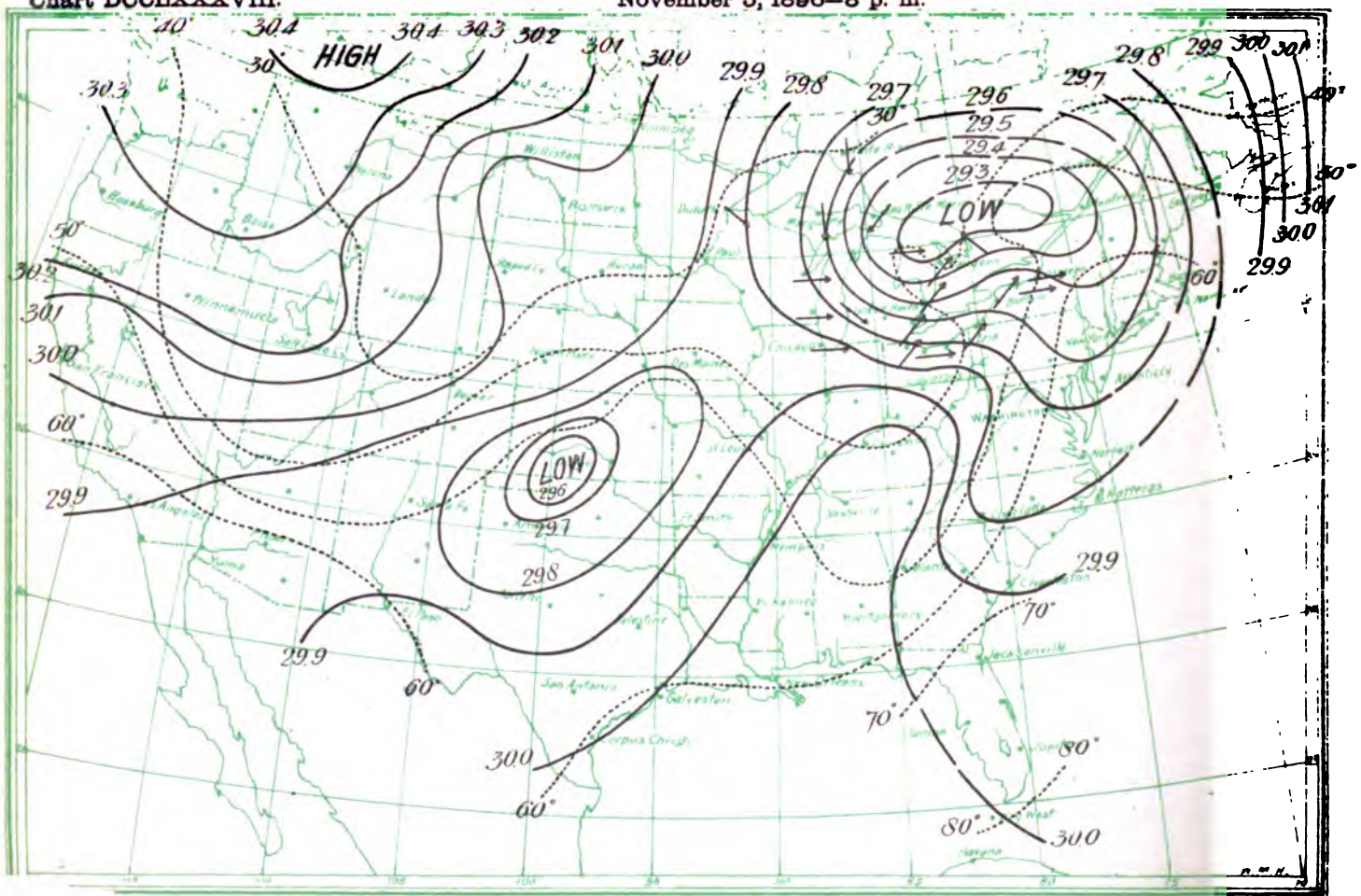


Chart DOOLXXXIX.

November 4, 1897—8 a. m.

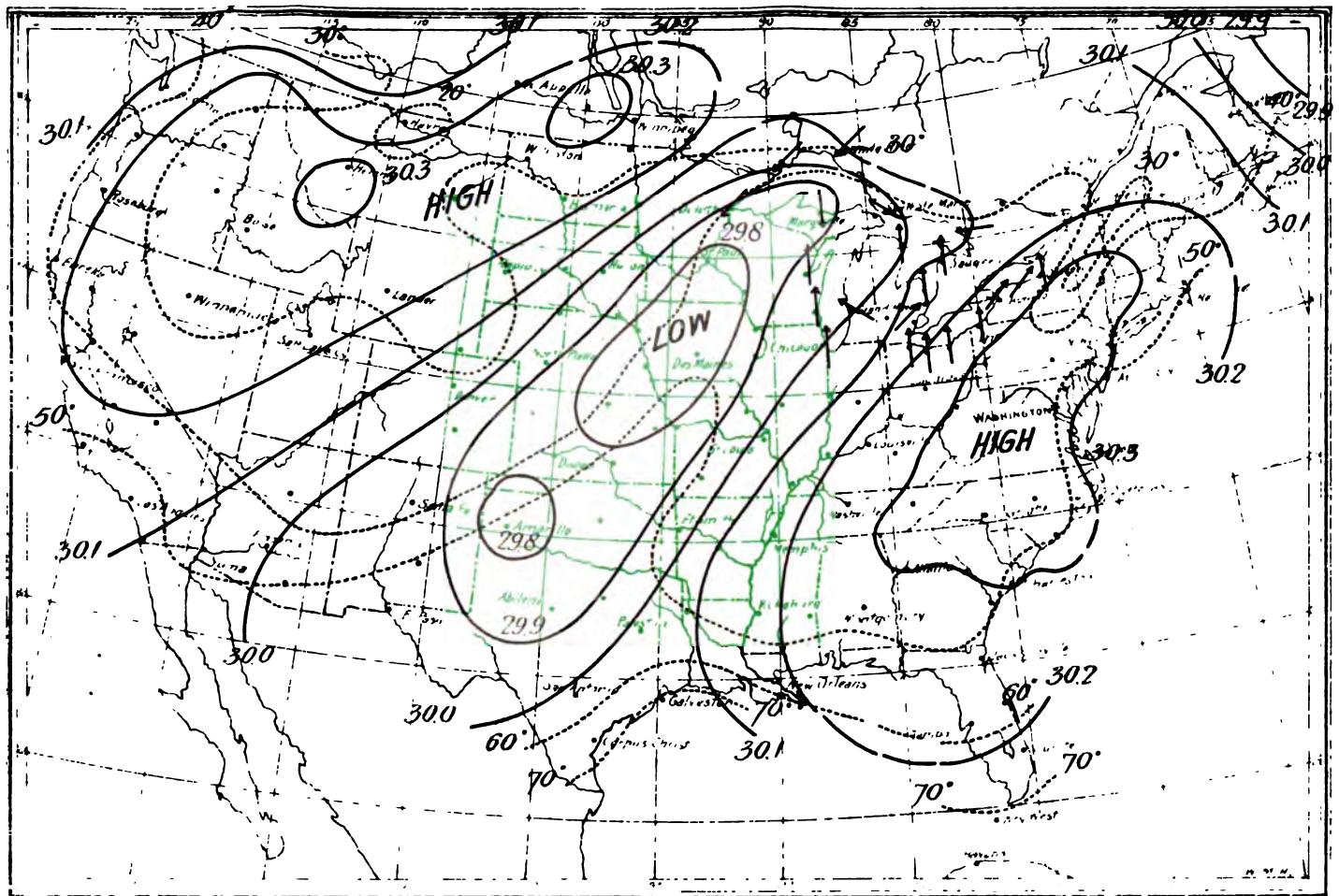


Chart DOOXO.

November 4, 1897—8 p. m.

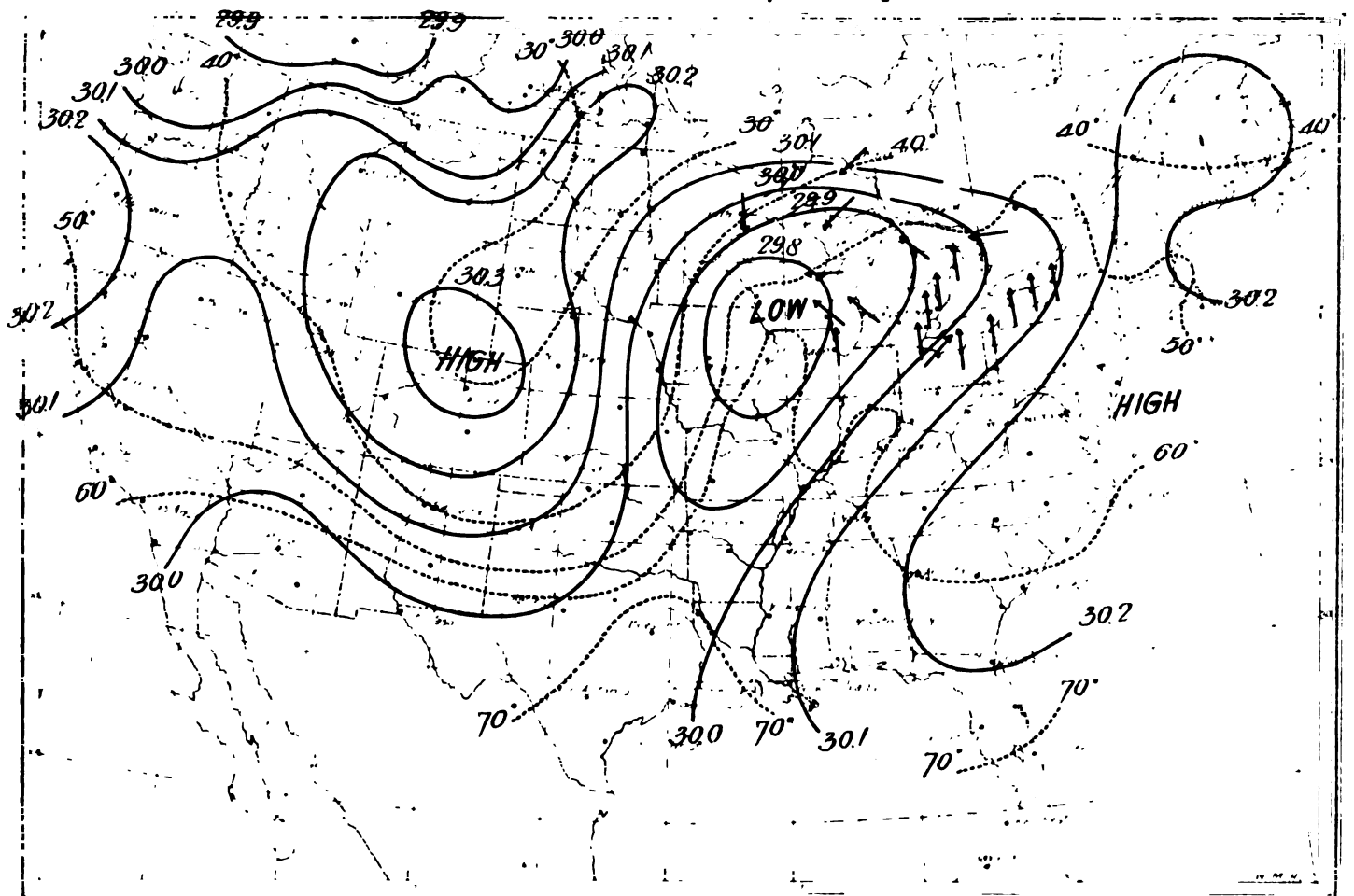


Chart DOCKOL

November 5, 1897—8 a. m.

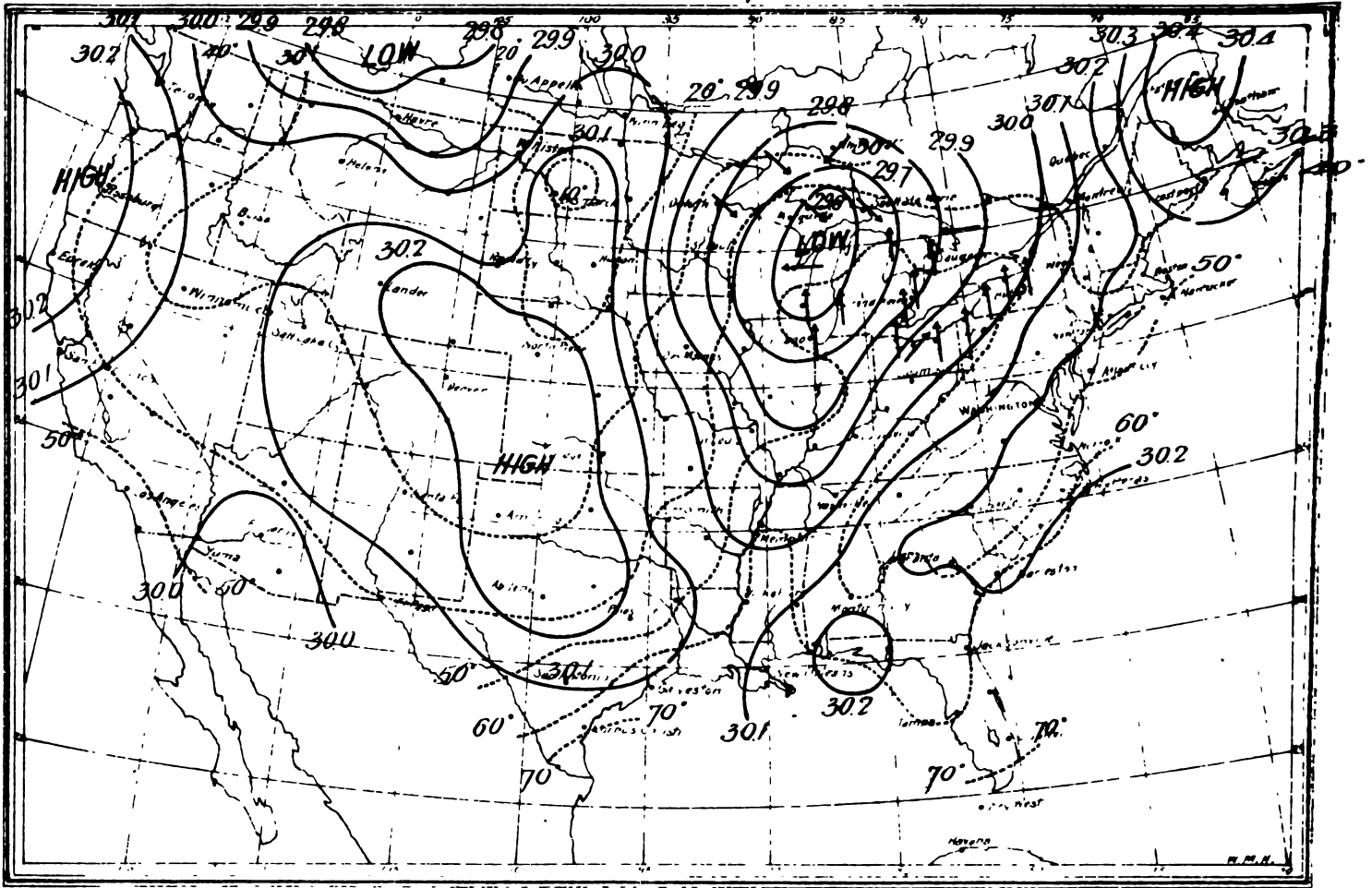


Chart DOCKOL

November 5, 1897—8 p. m.

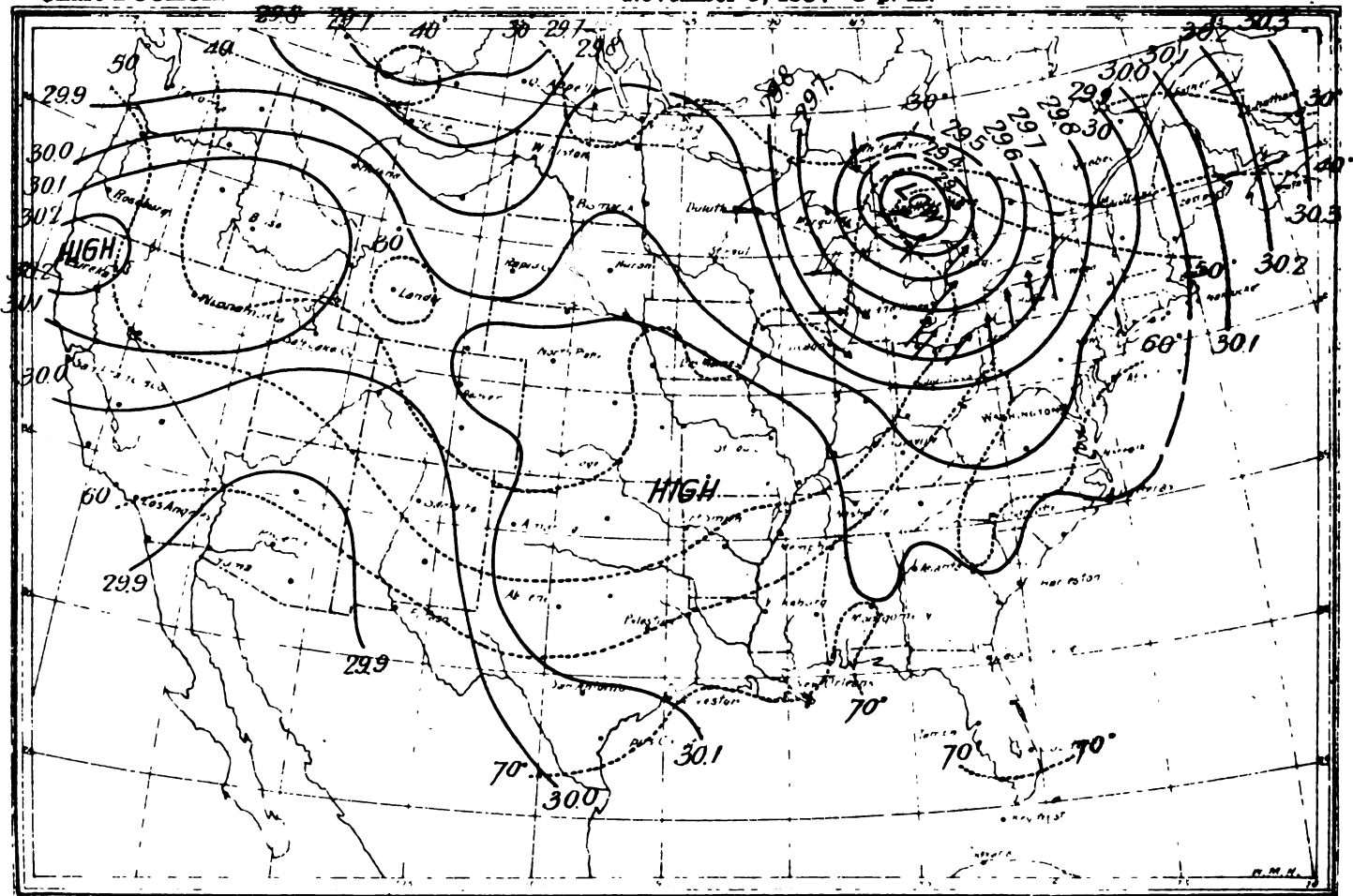


Chart DCOXIII.

November 8, 1897—8 a. m.

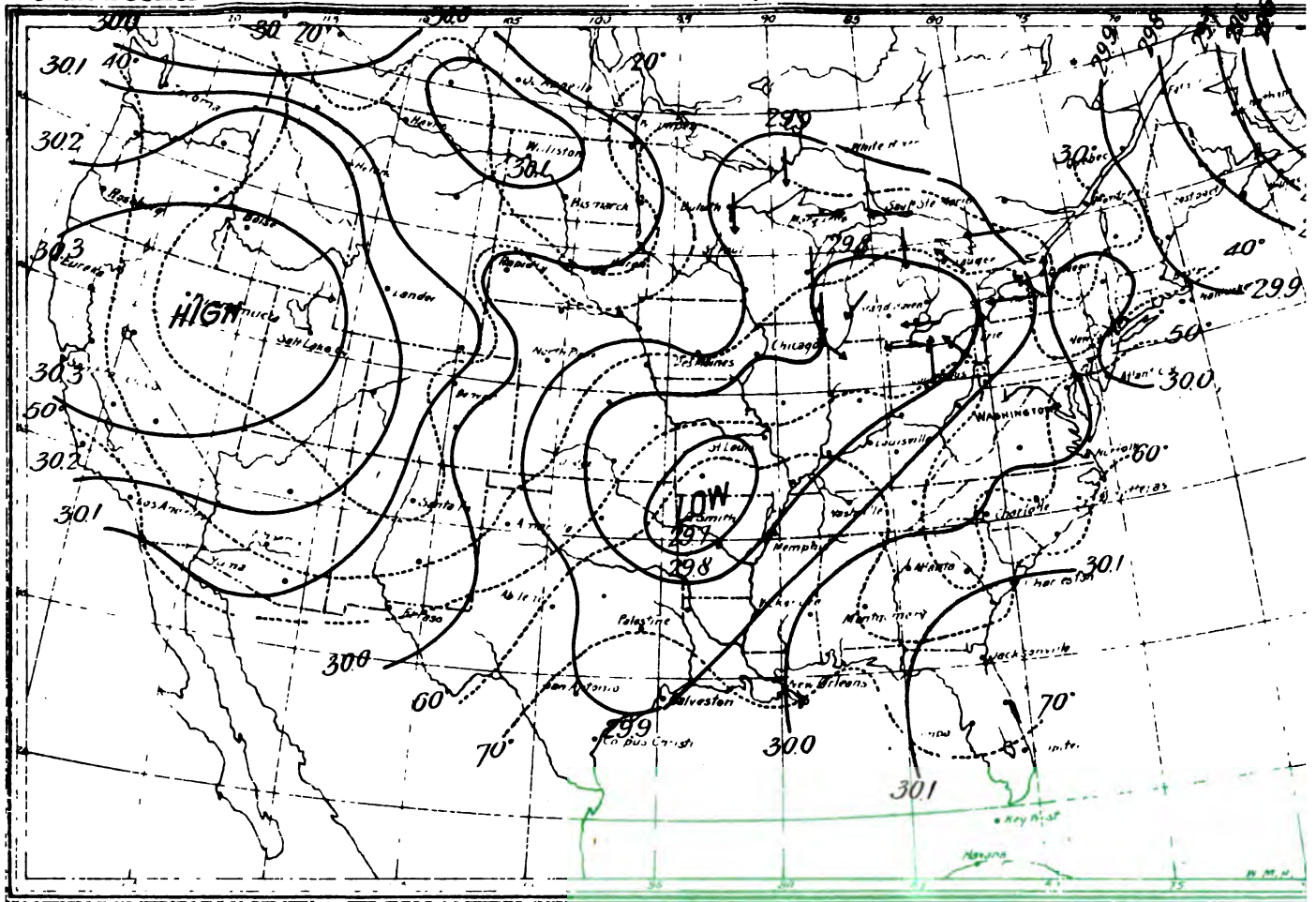
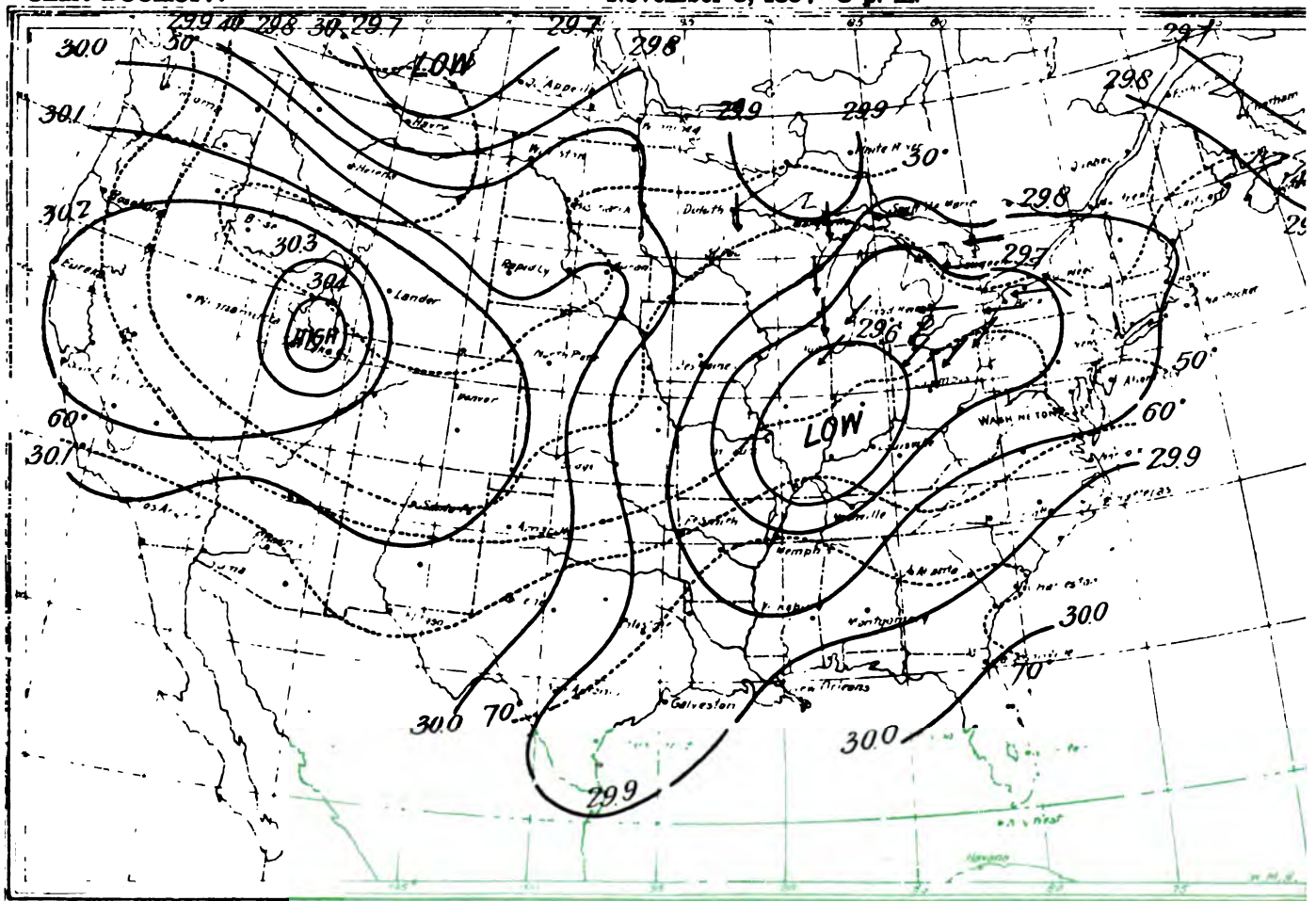


Chart DCOXIV.

November 8, 1897—8 p. m.



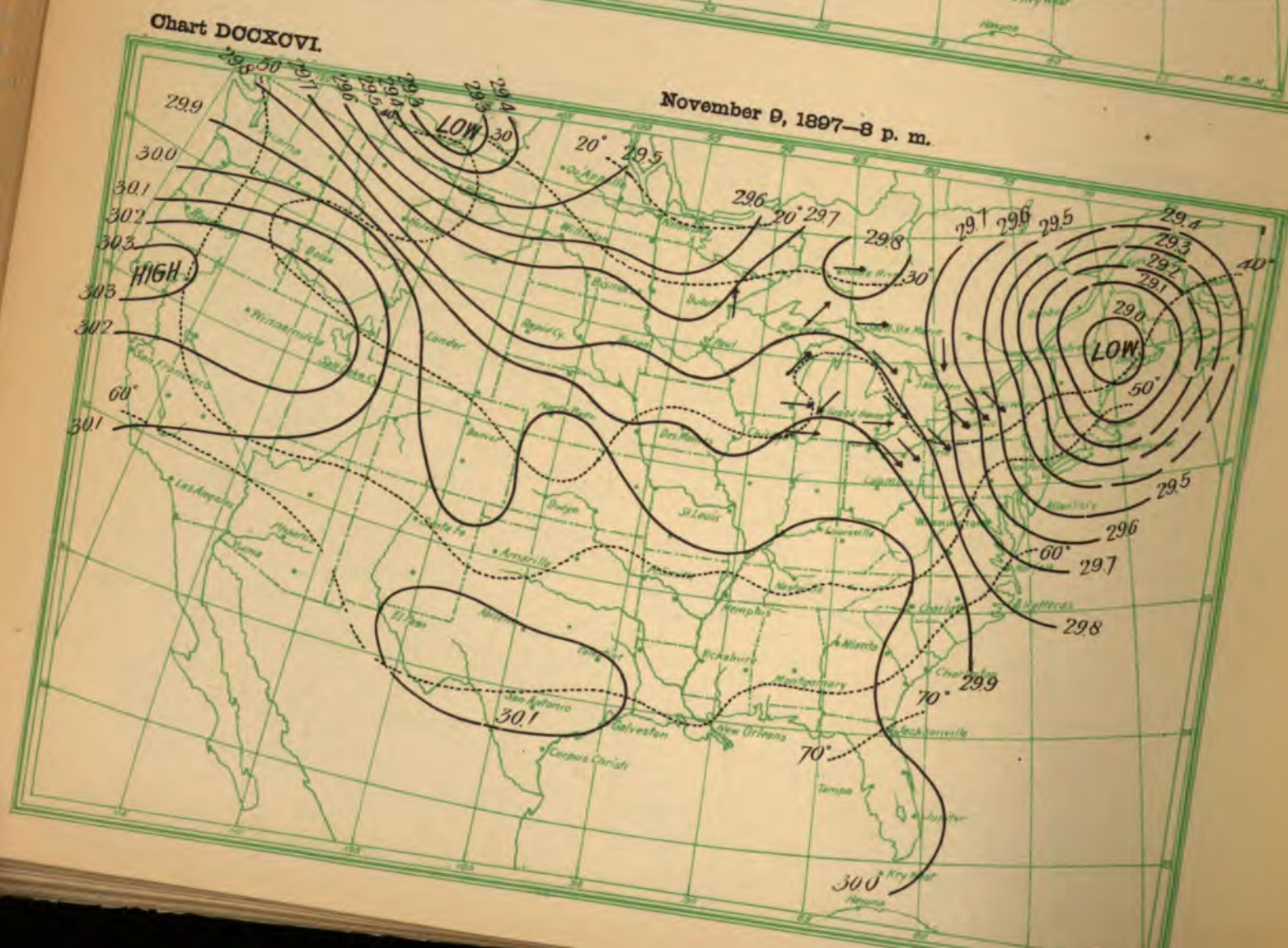
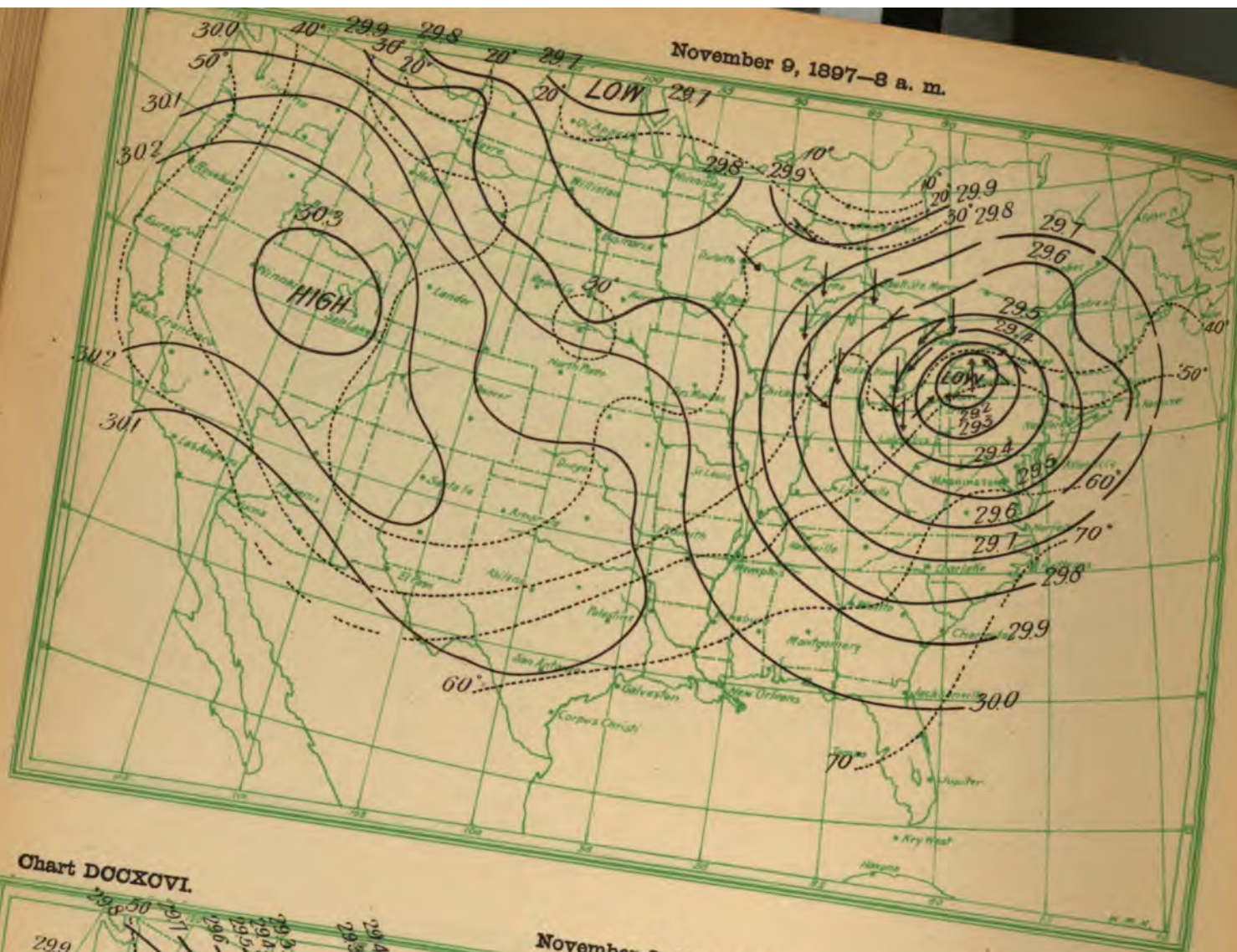


Chart DOCKOVII.

November 10, 1897—8 a. m.

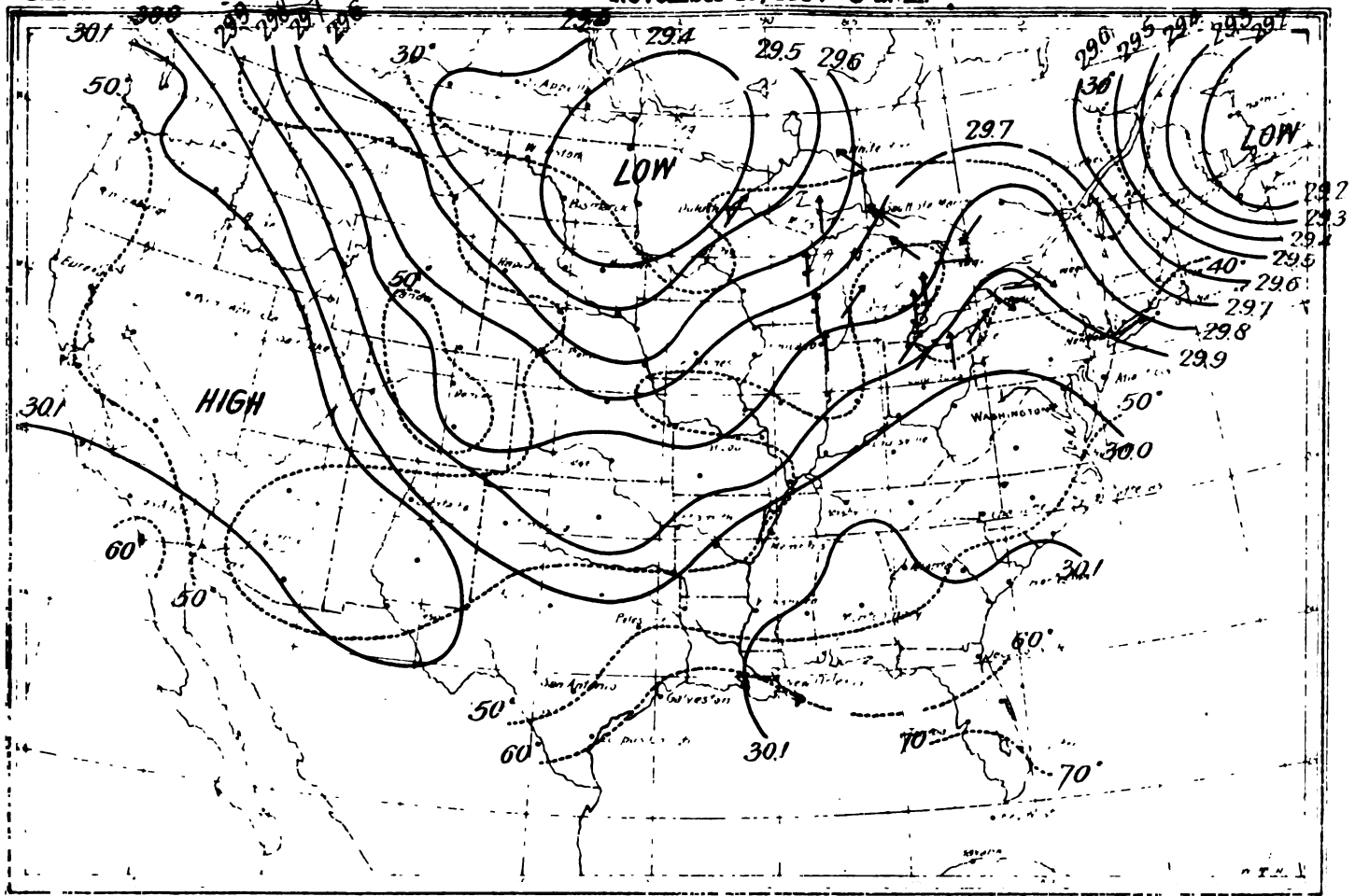


Chart DOCKOVIII.

November 10, 1897—8 p. m.

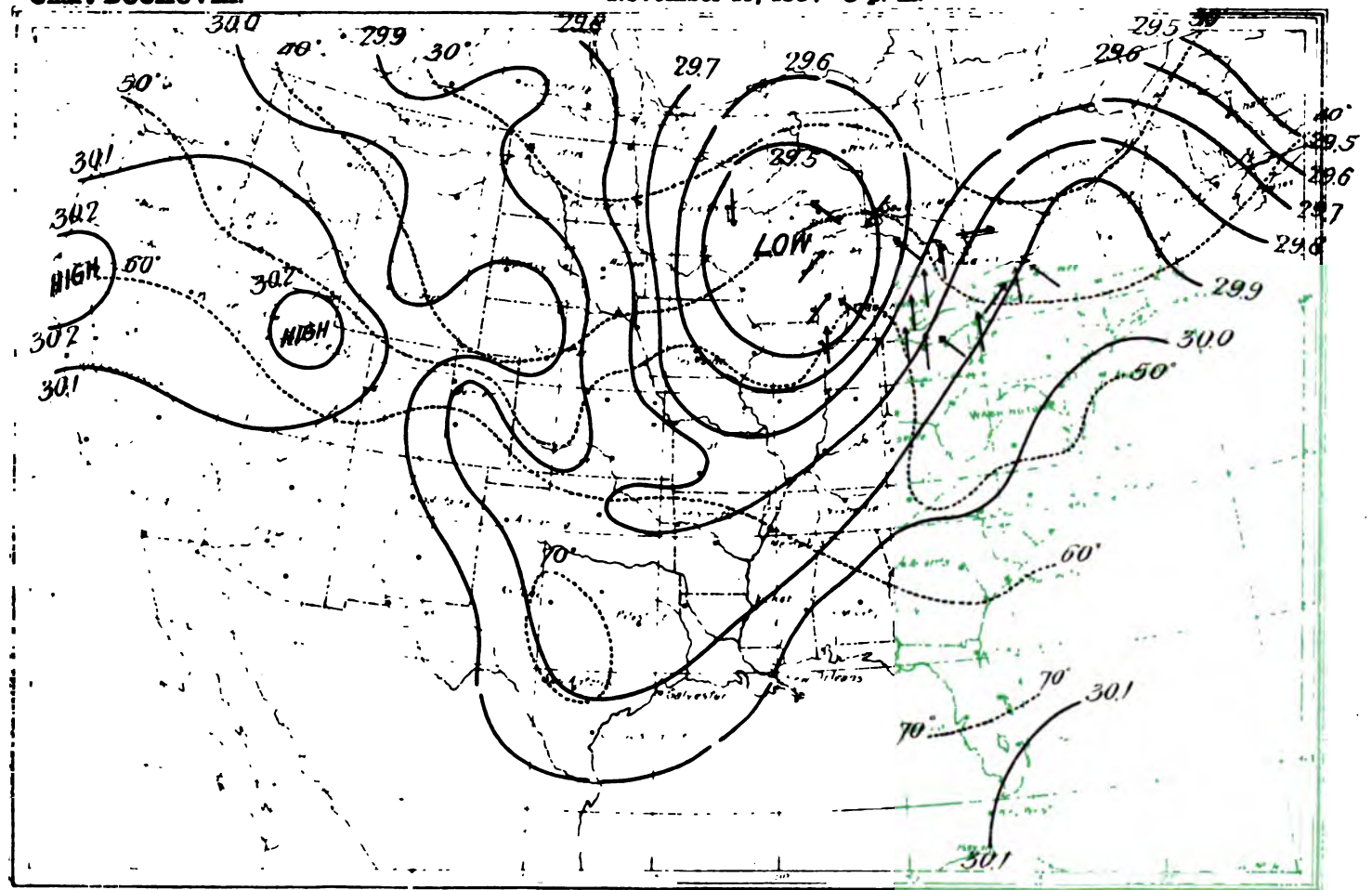


Chart DGOXOLX.

November 11, 1897—8 a. m.

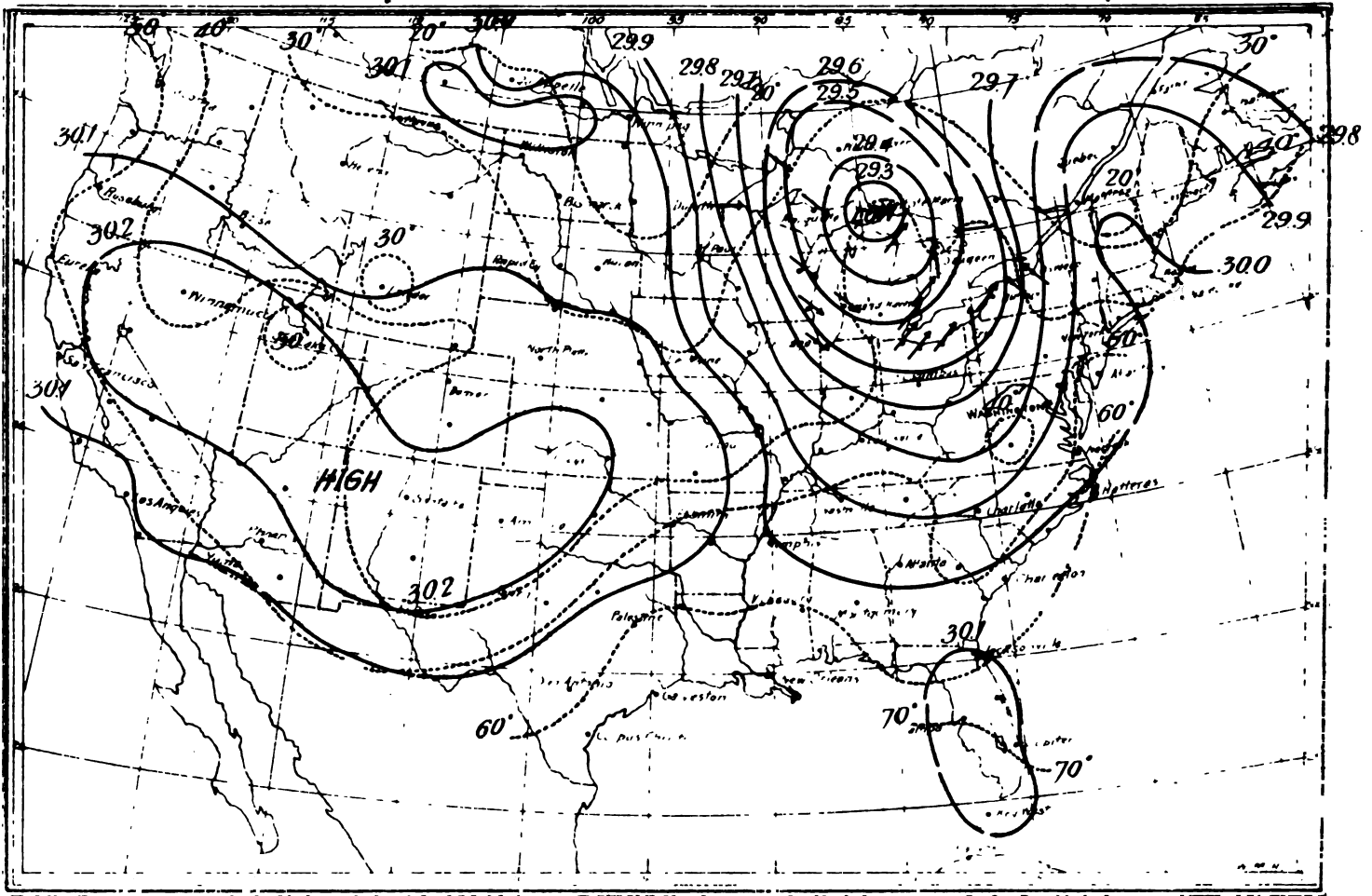


Chart DCCC.

November 11, 1897—8 p. m.

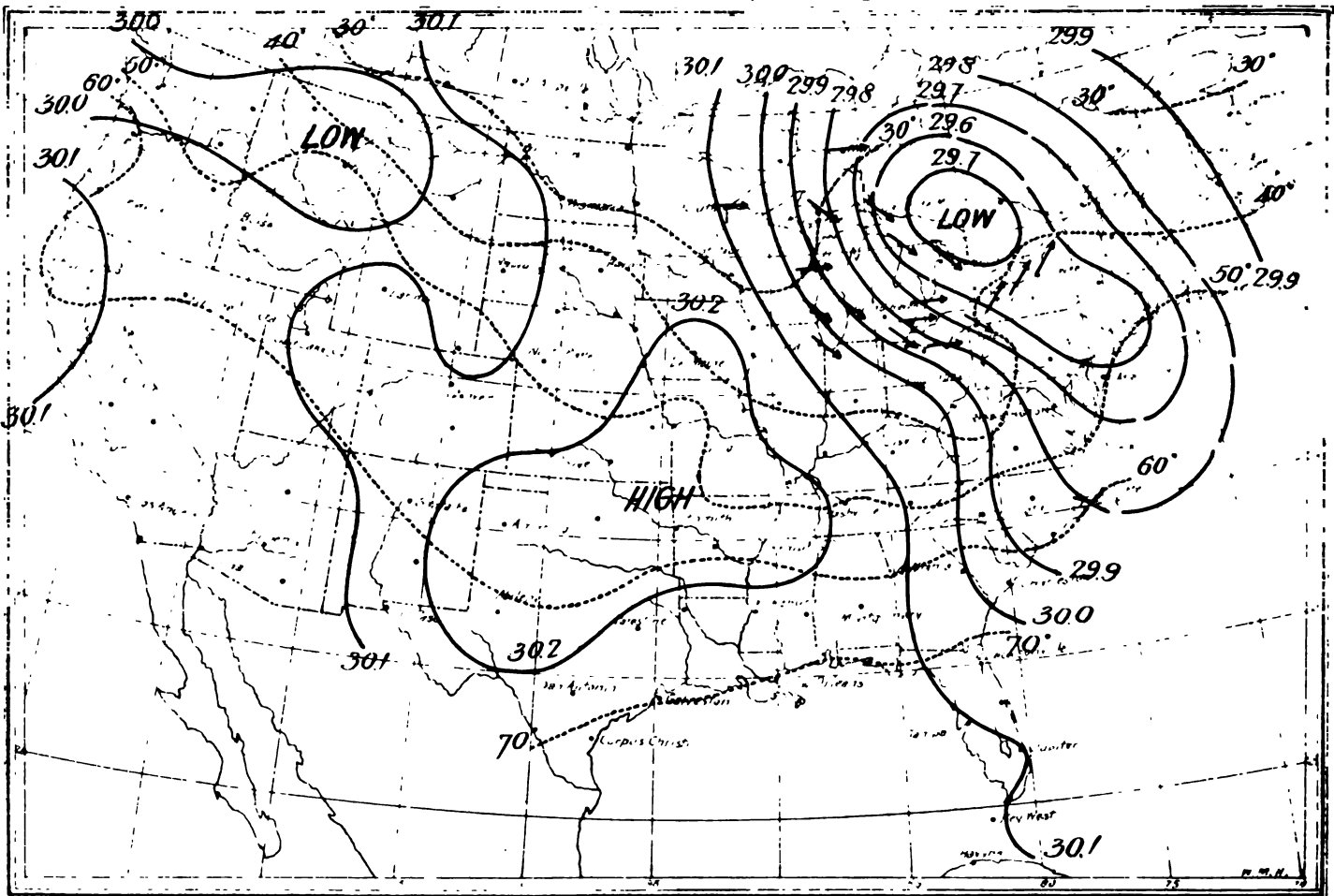


Chart DCCCL

November 1, 1898—8 a. m.

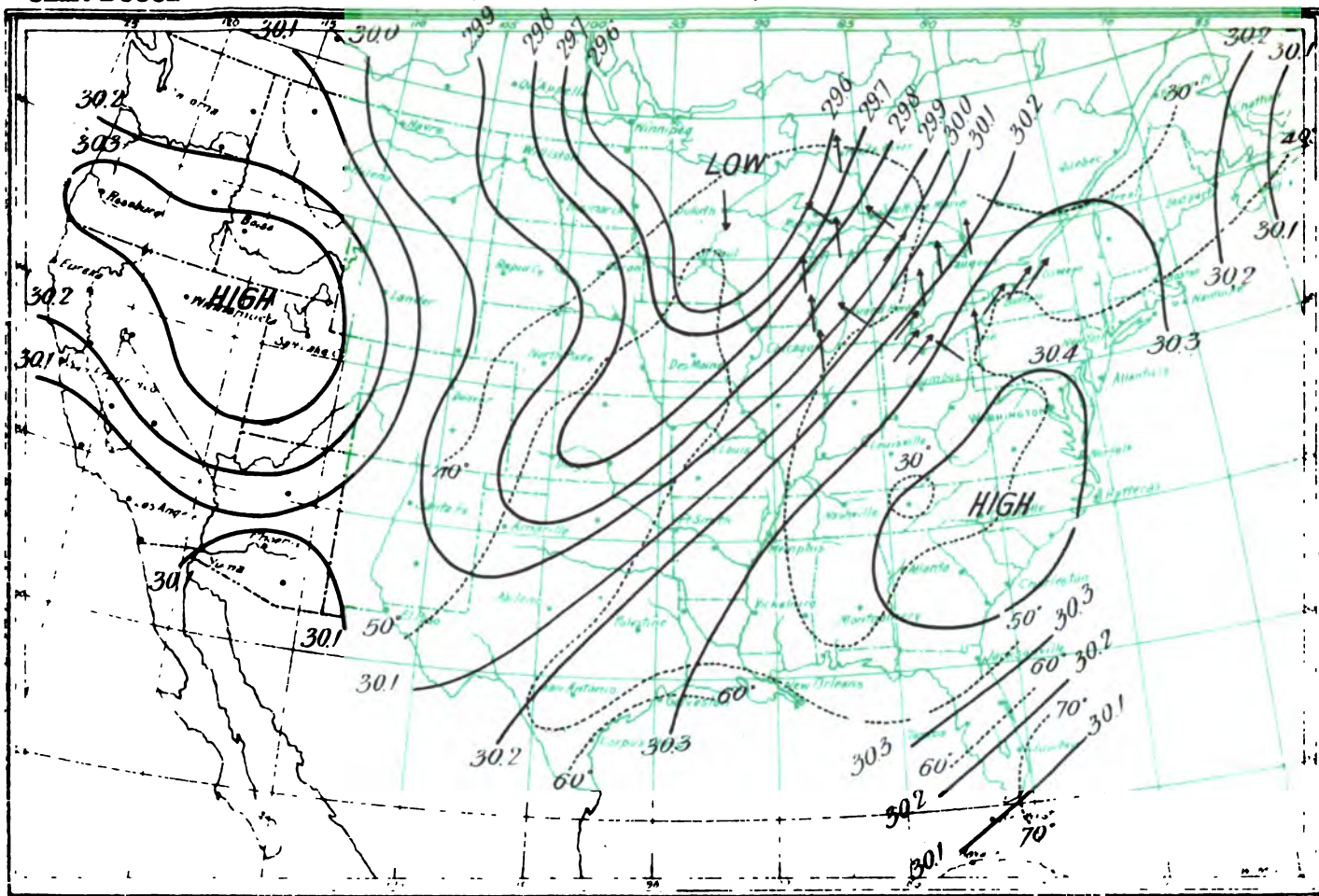


Chart DCCCLII.

November 1, 1898—8 p. m.

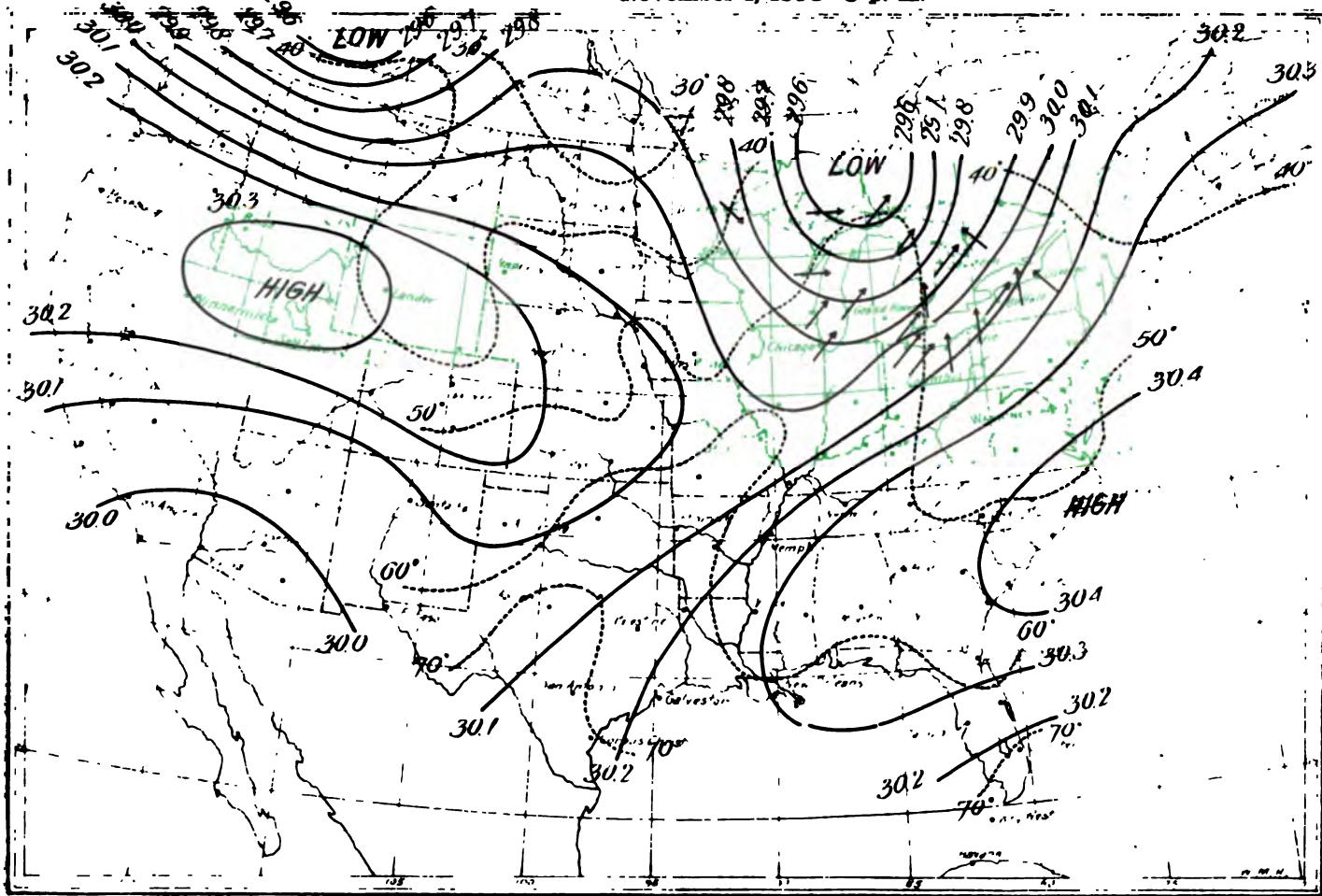


Chart D000III.

November 2, 1898—8 a. m.

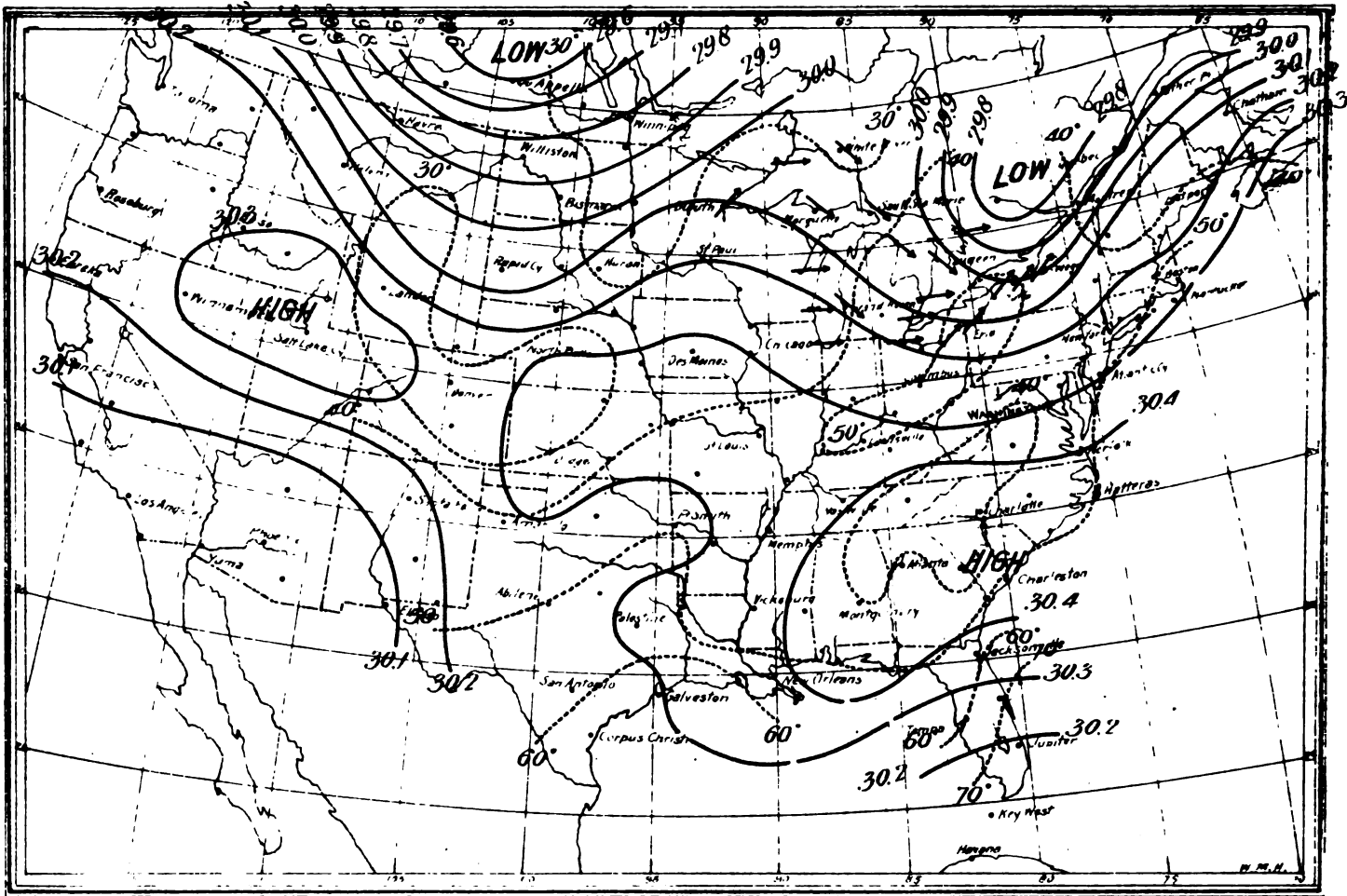


Chart D000IV.

November 2, 1898—8 p. m.

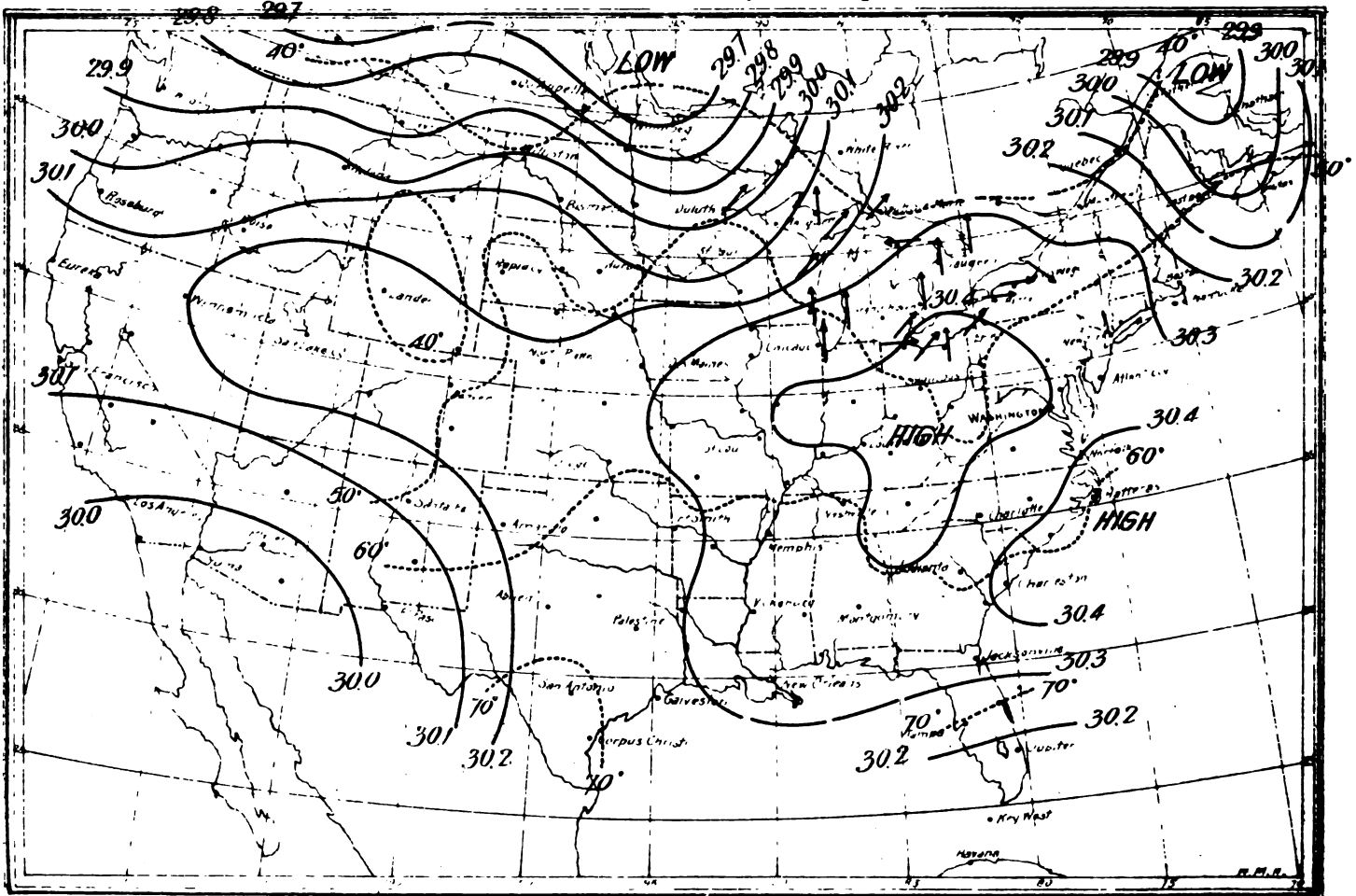


Chart D000V.

November 4, 1898—8 a. m.

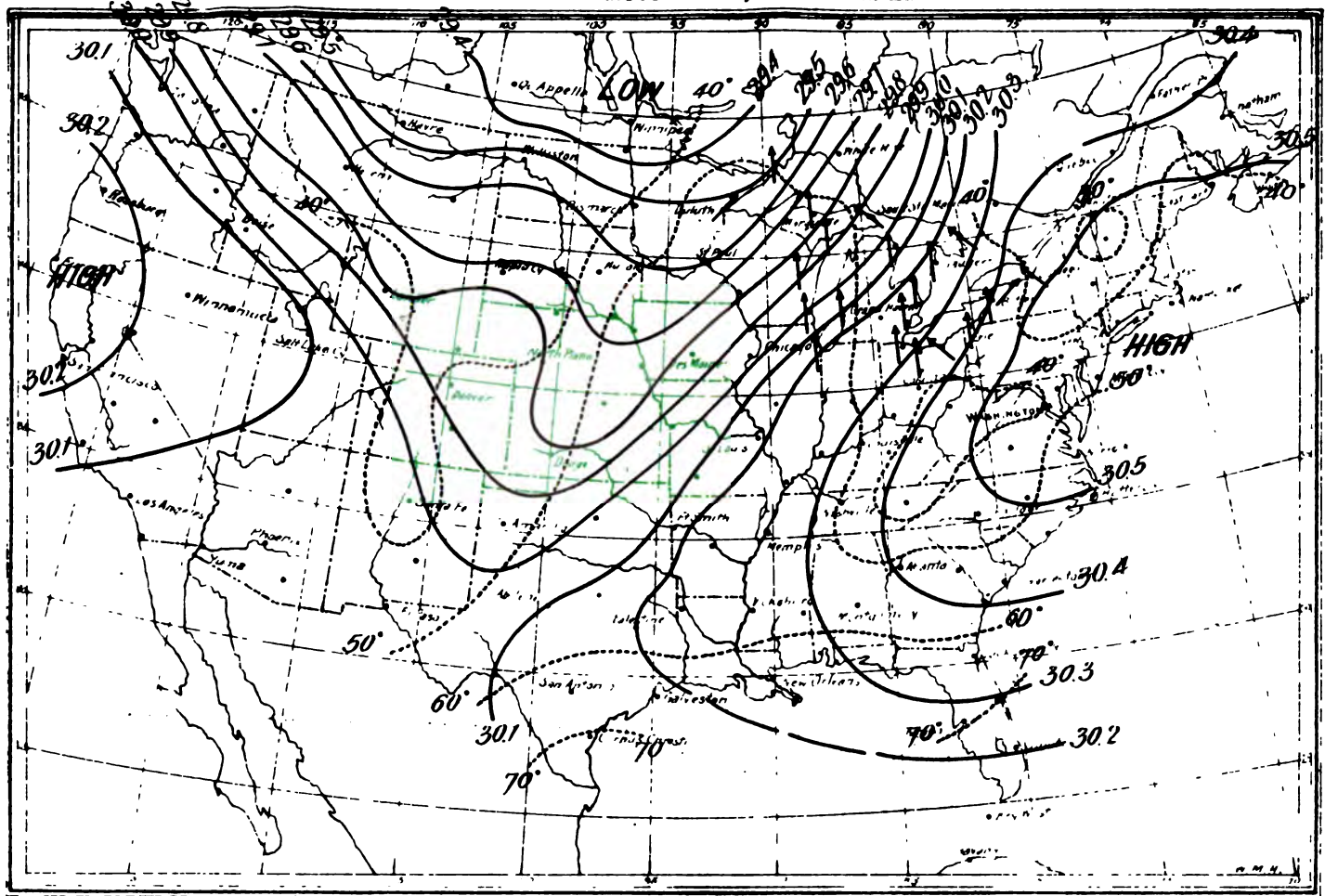
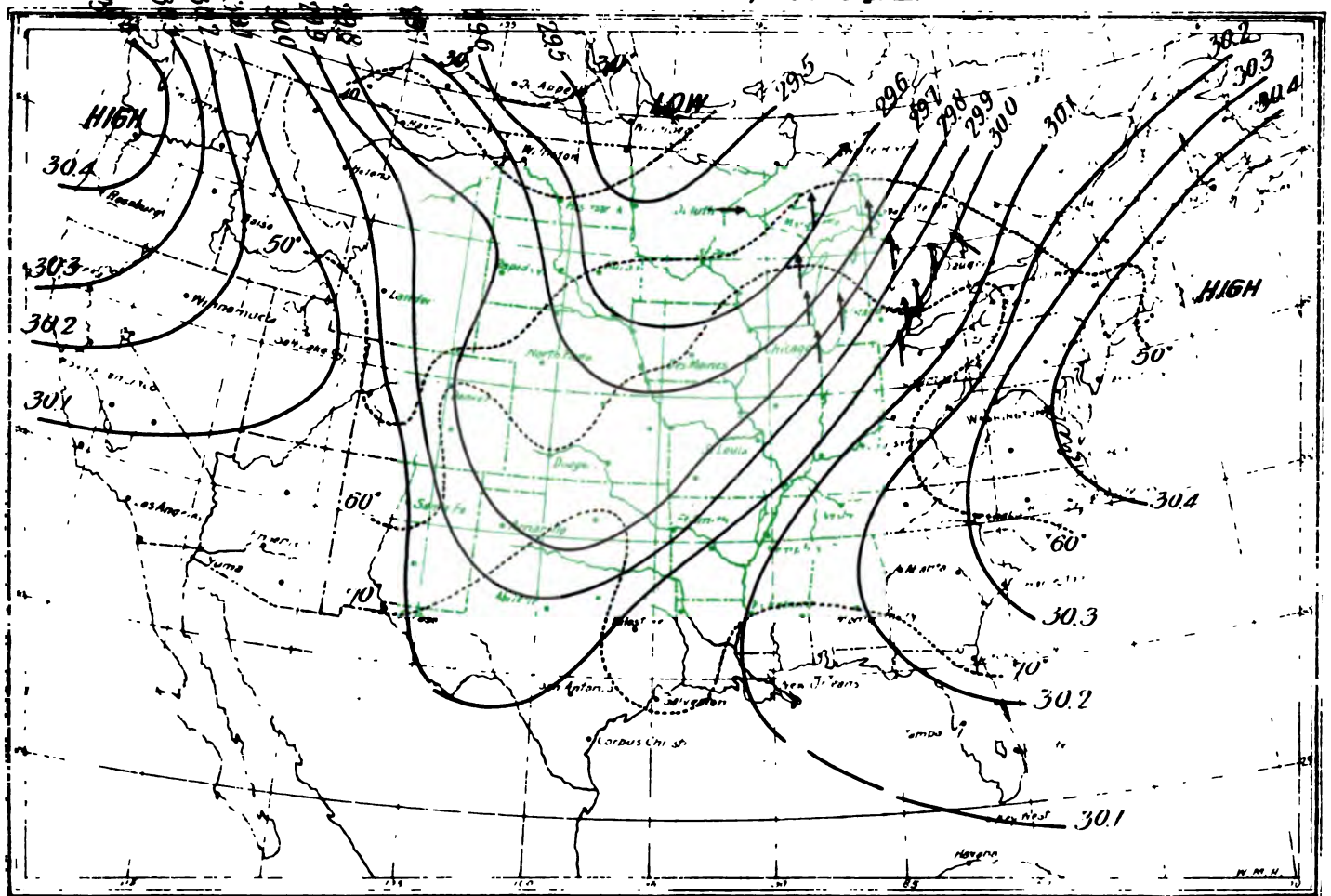
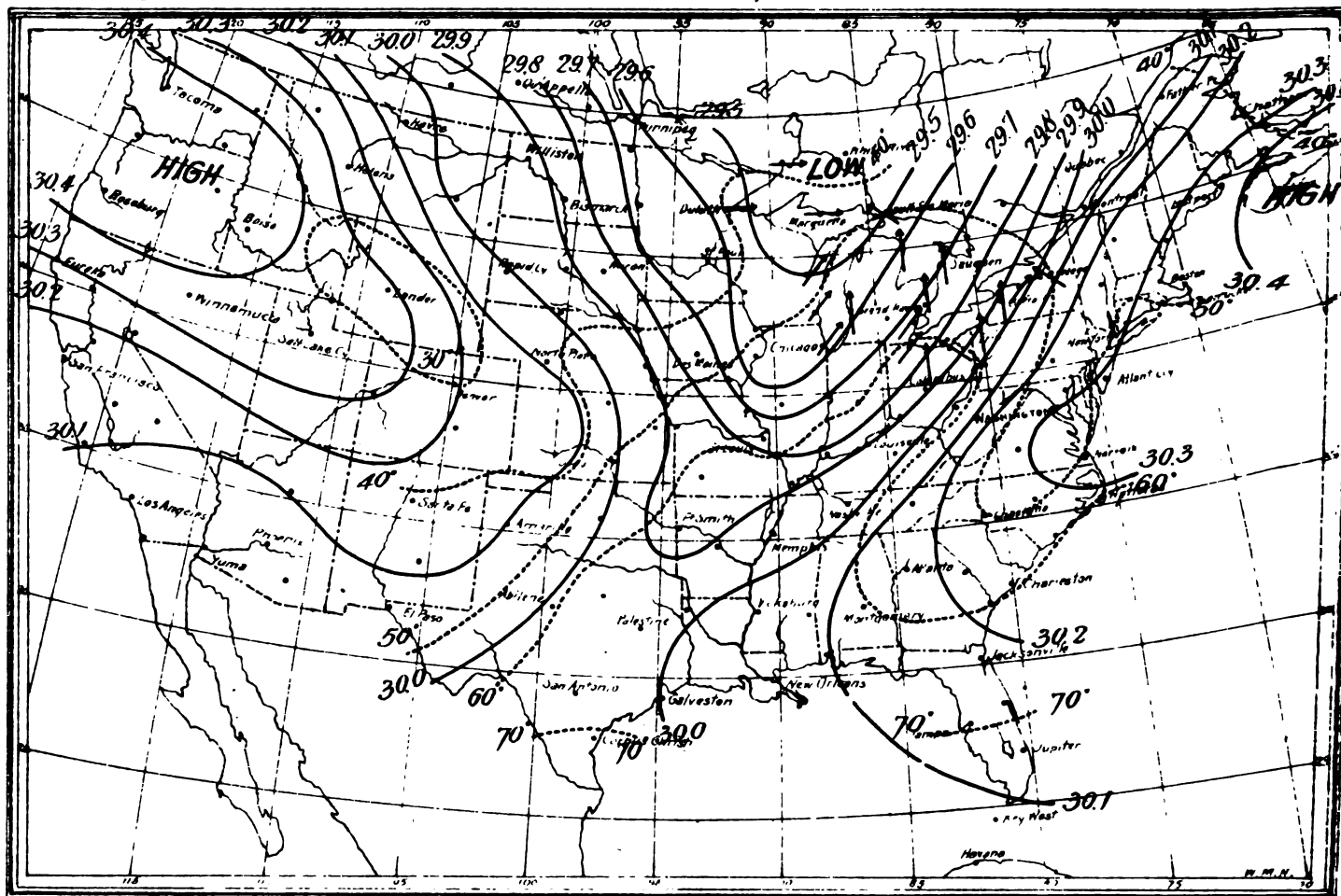


Chart D000VI.

November 4, 1898—8 p. m.



November 5, 1898—8 a. m.



November 5, 1898—8 p. m.

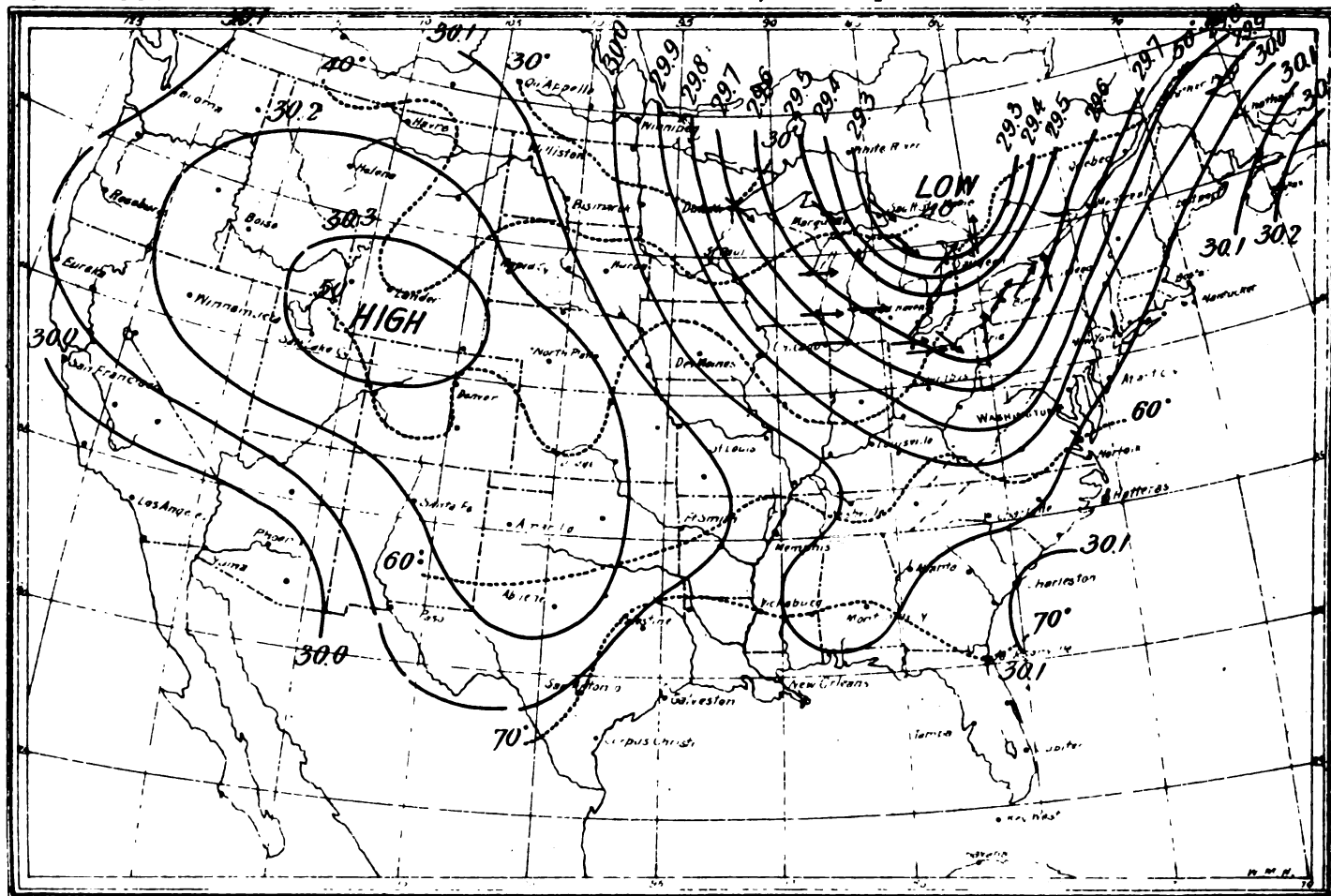


Chart D000IX.

November 7, 1898—8 a. m.

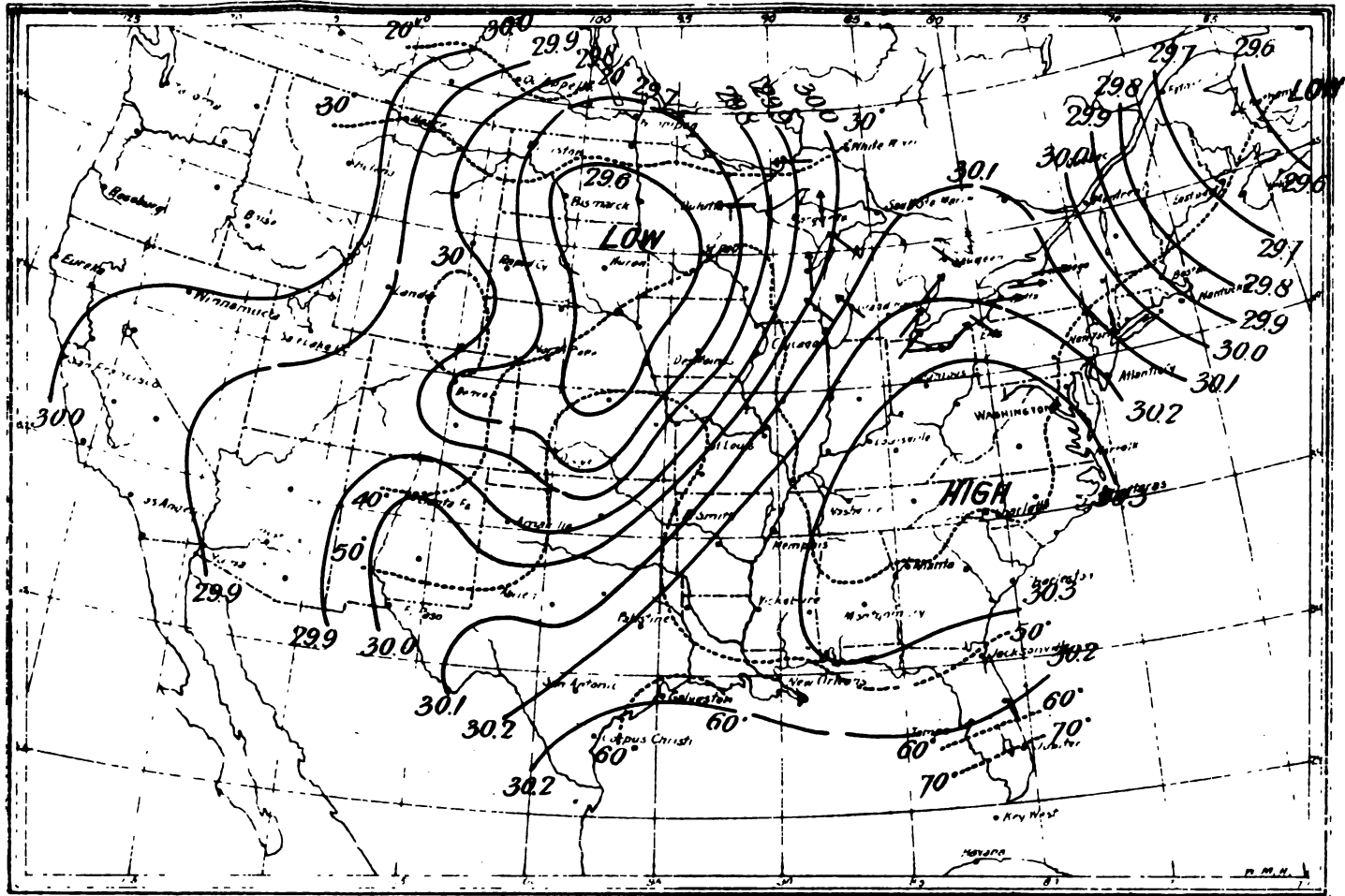


Chart D000IX.

November 7, 1898—8 p. m.

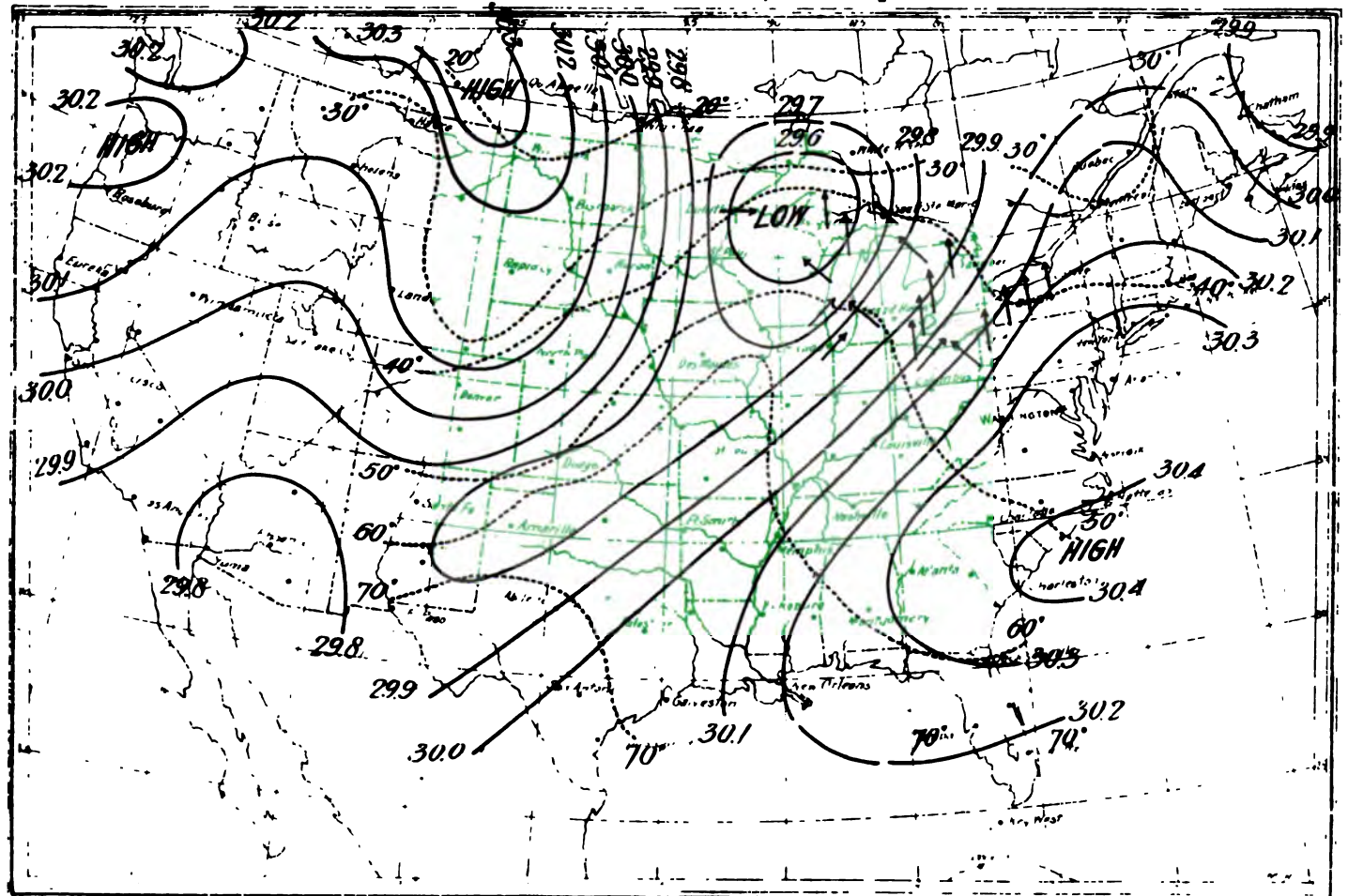


Chart D000XI.

November 8, 1898—8 a. m.

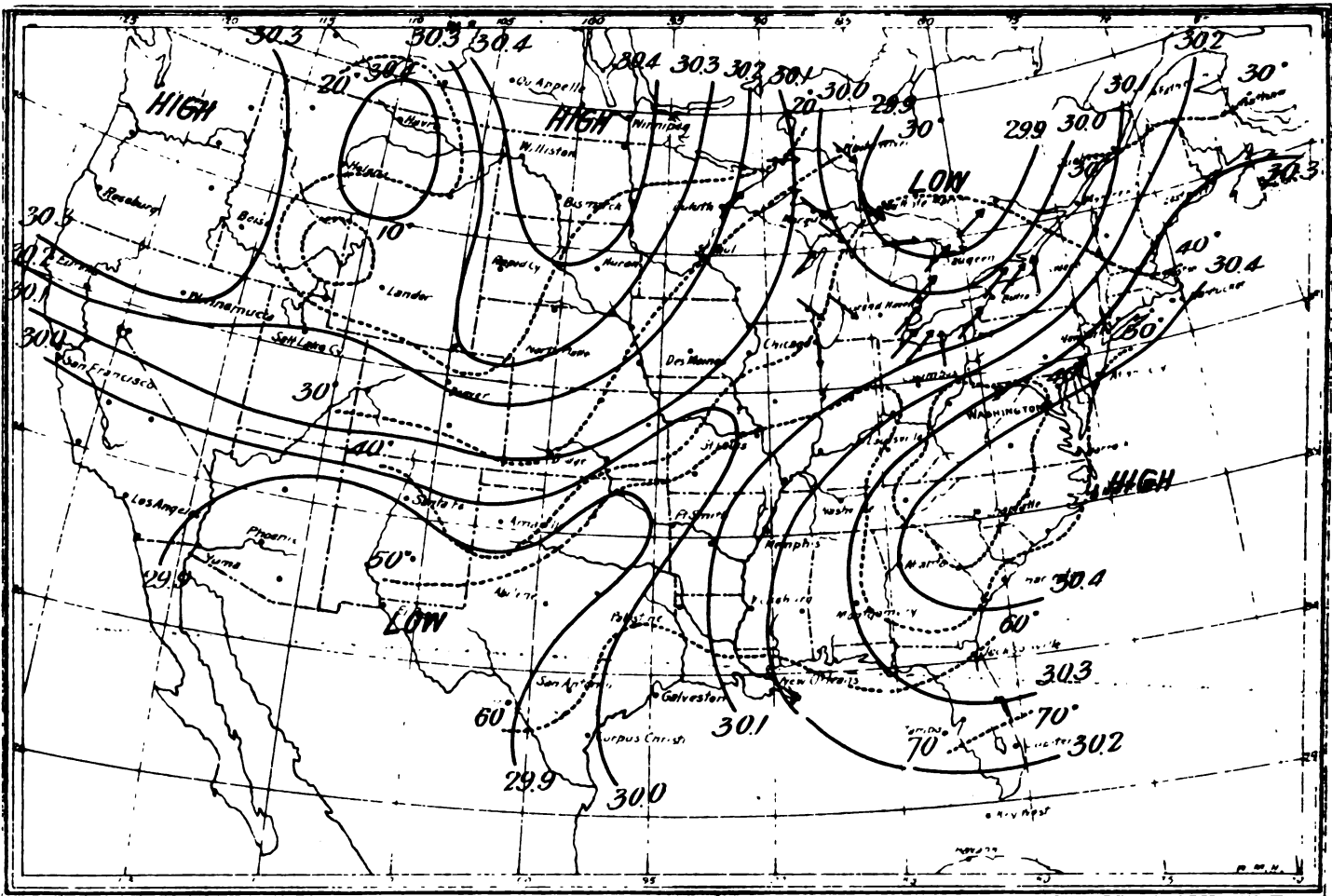


Chart D000XII.

November 8, 1898—8 p. m.

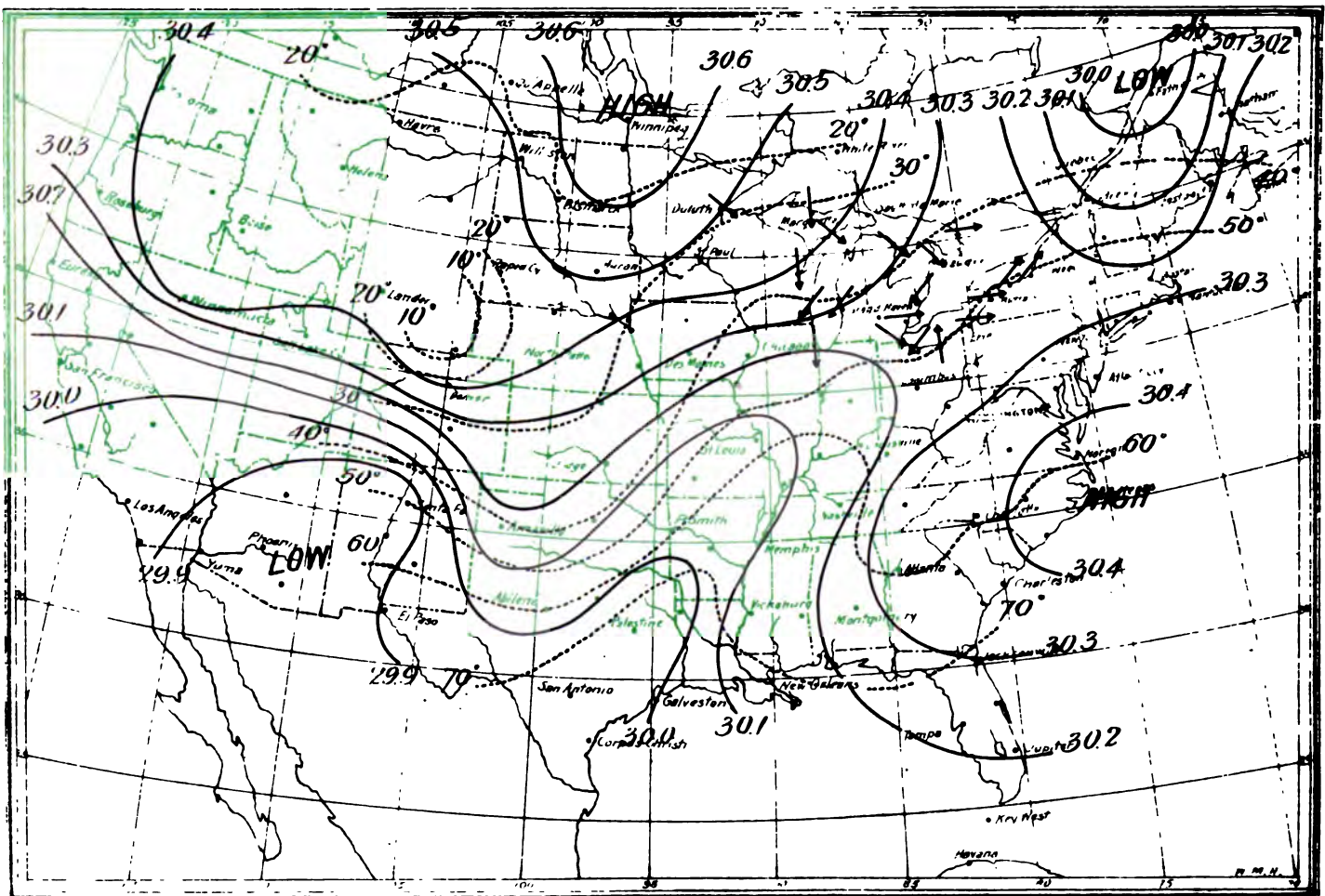


Chart DCCXXIII.

November 21, 1898—8 a. m.

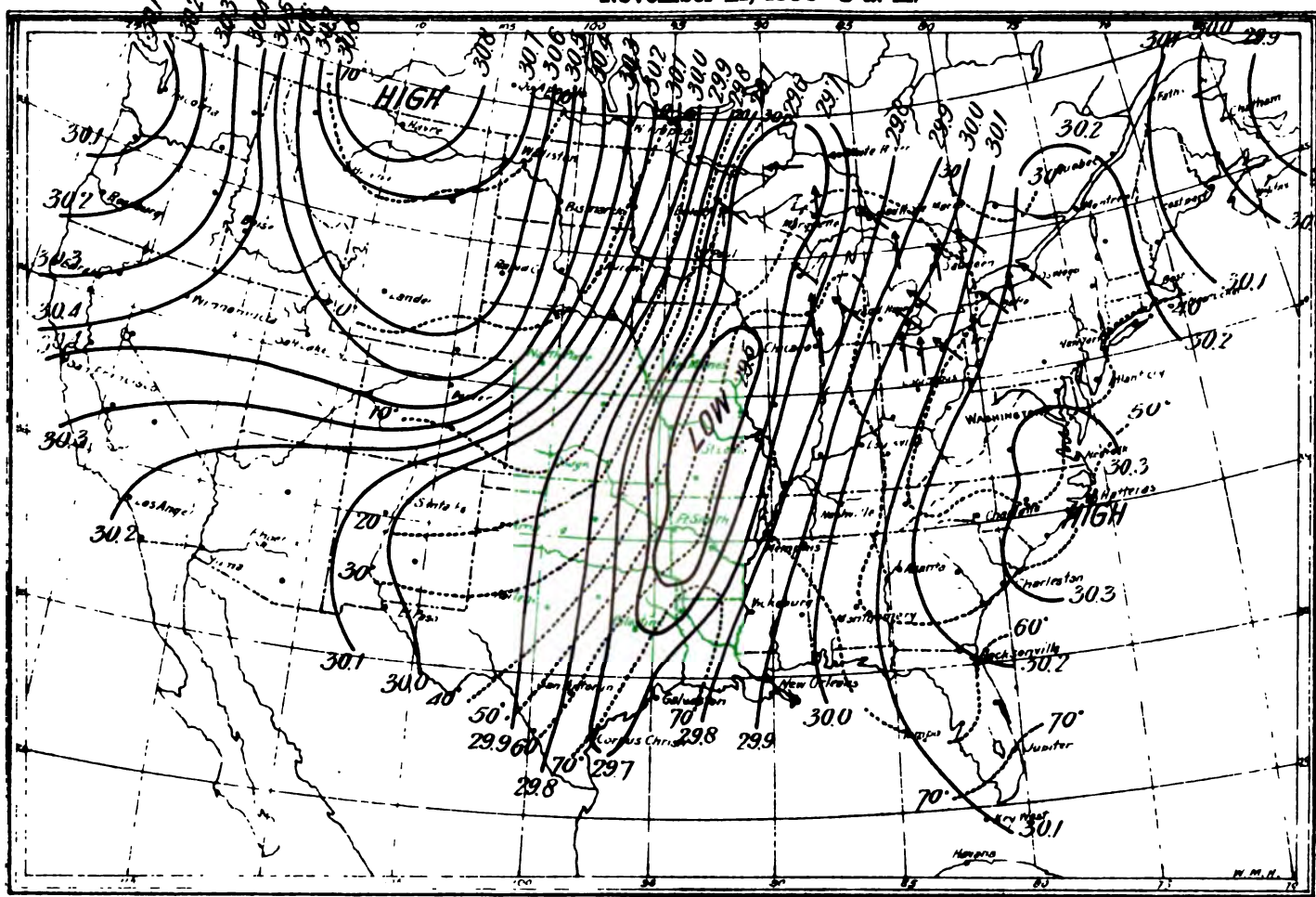


Chart DCCXXIV.

November 21, 1898—8 p. m.

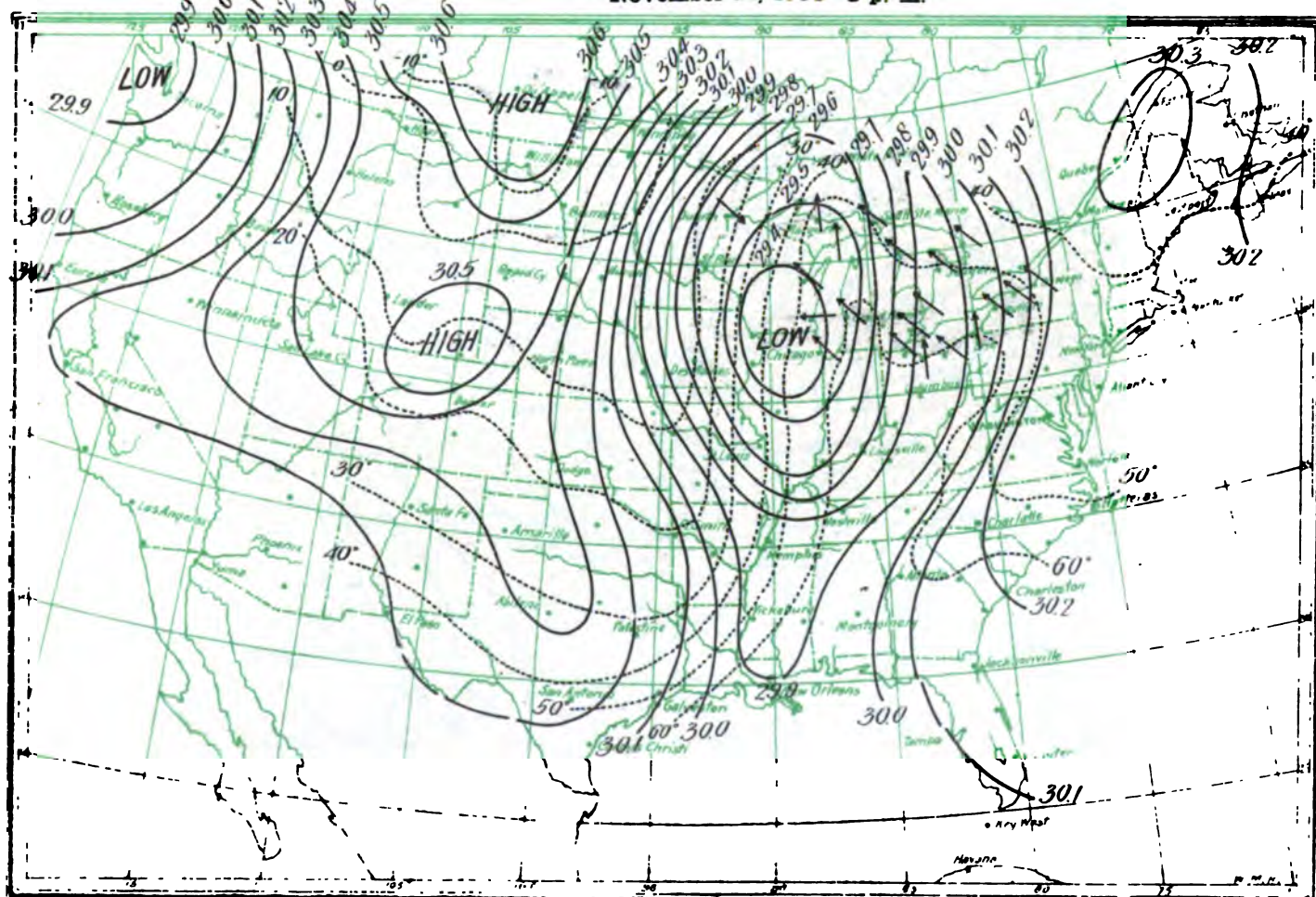


Chart D000XV.

November 22, 1898—8 a. m.

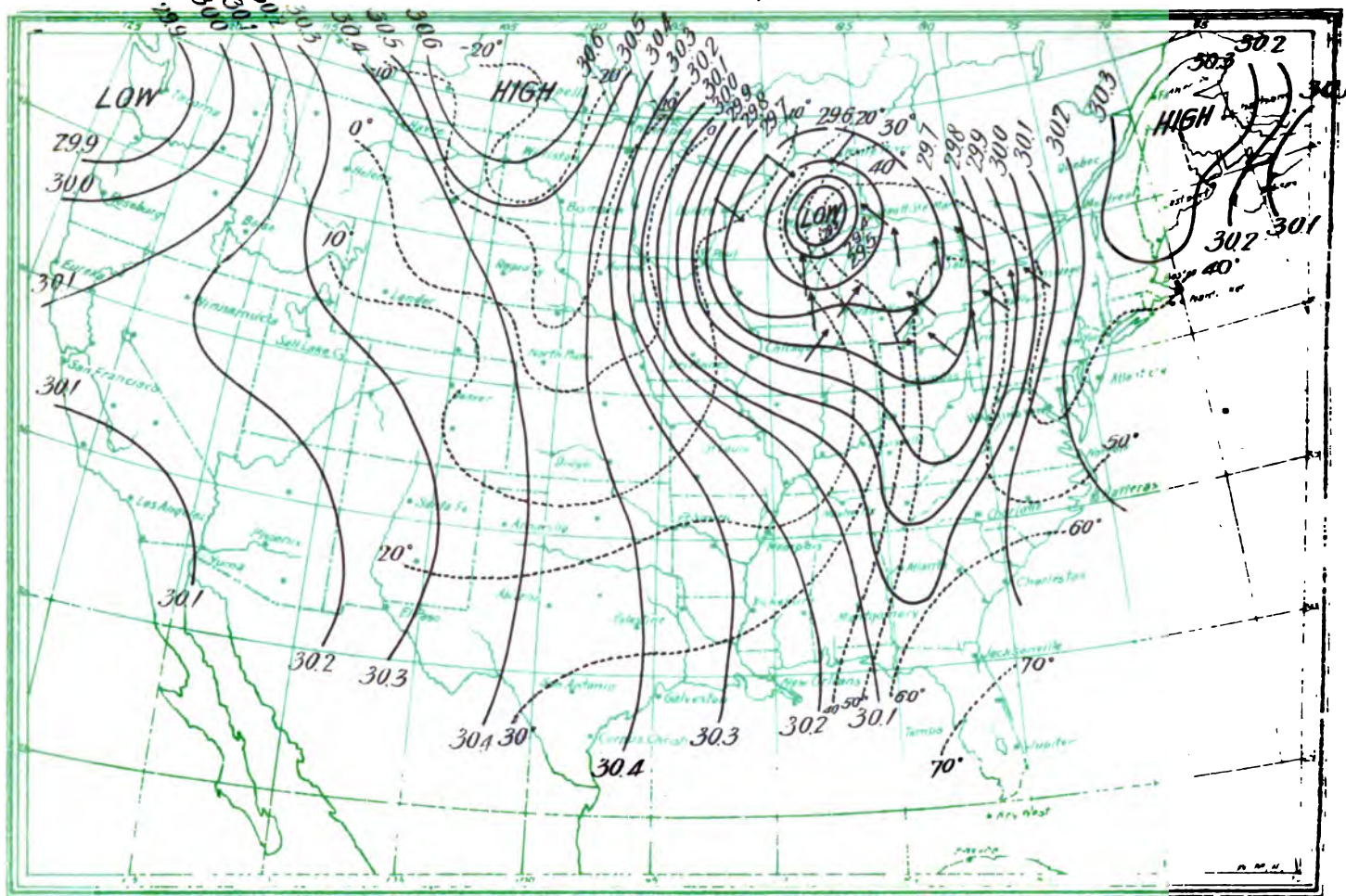


Chart D000XVI.

November 22, 1898—8 p. m.

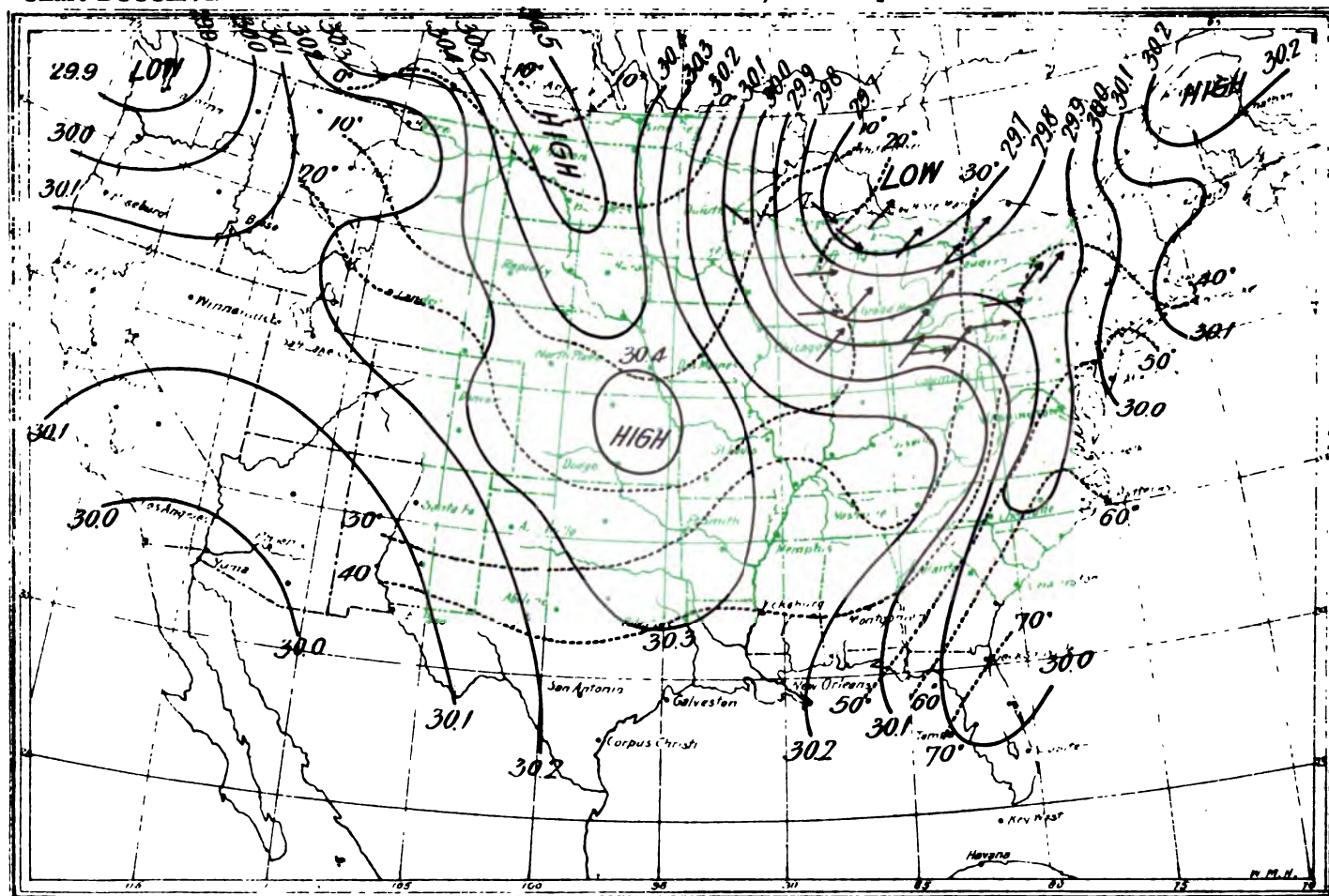


Chart DCCOXVII.

November 12, 1900—8 a. m.

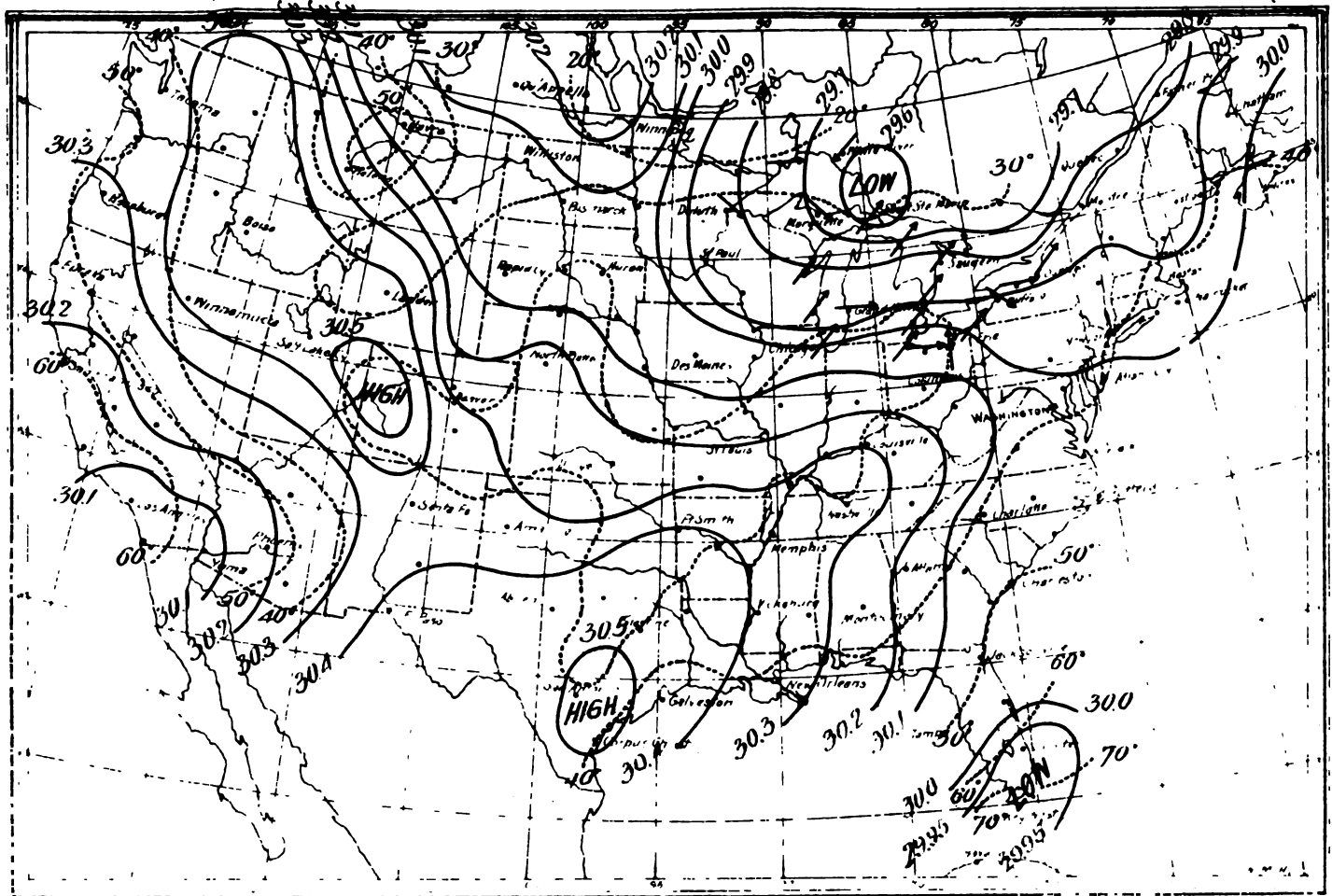


Chart DCCOXVIII.

November 12, 1900—8 p. m.

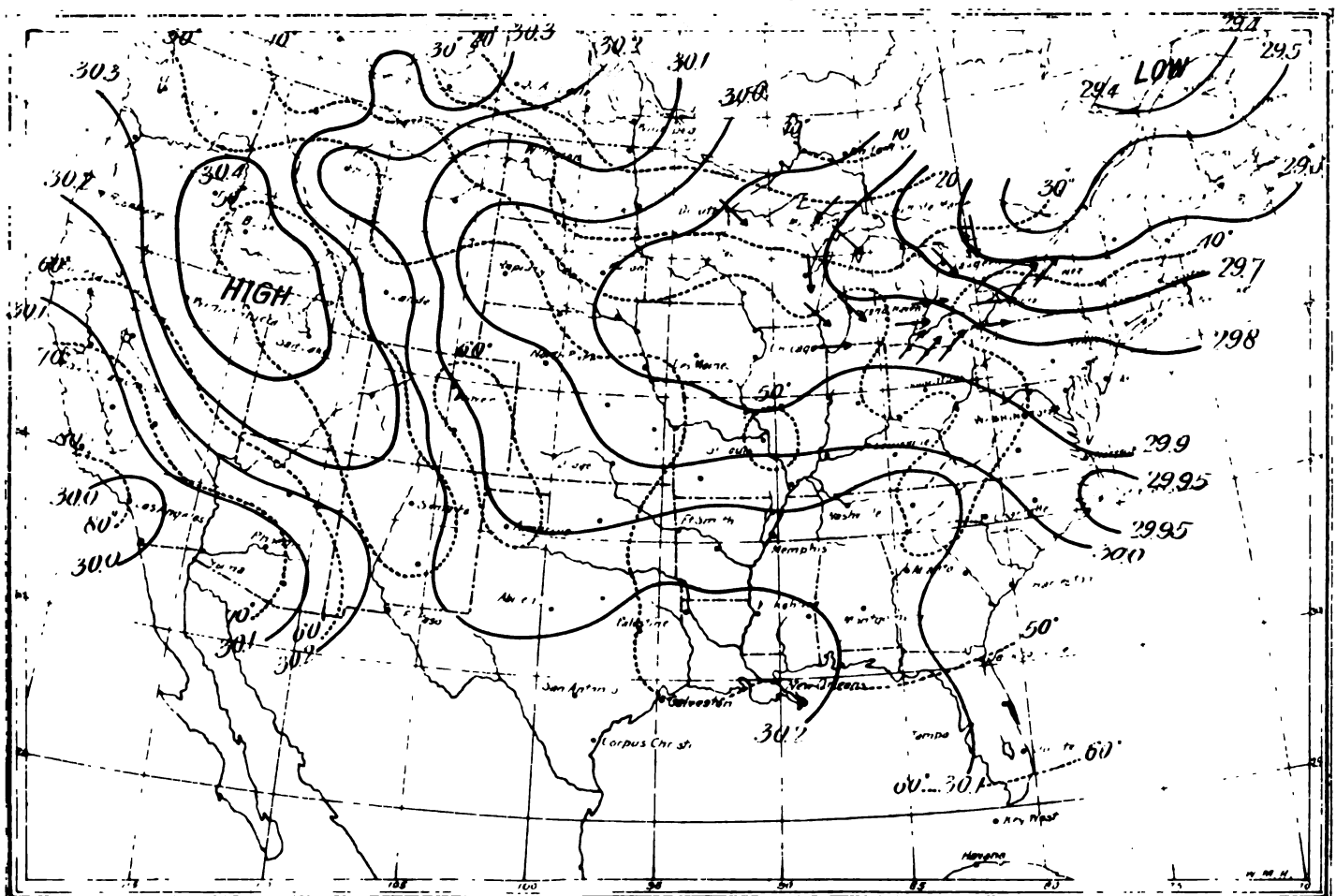


Chart DCOOXIX.

November 13, 1900—8 a. m.

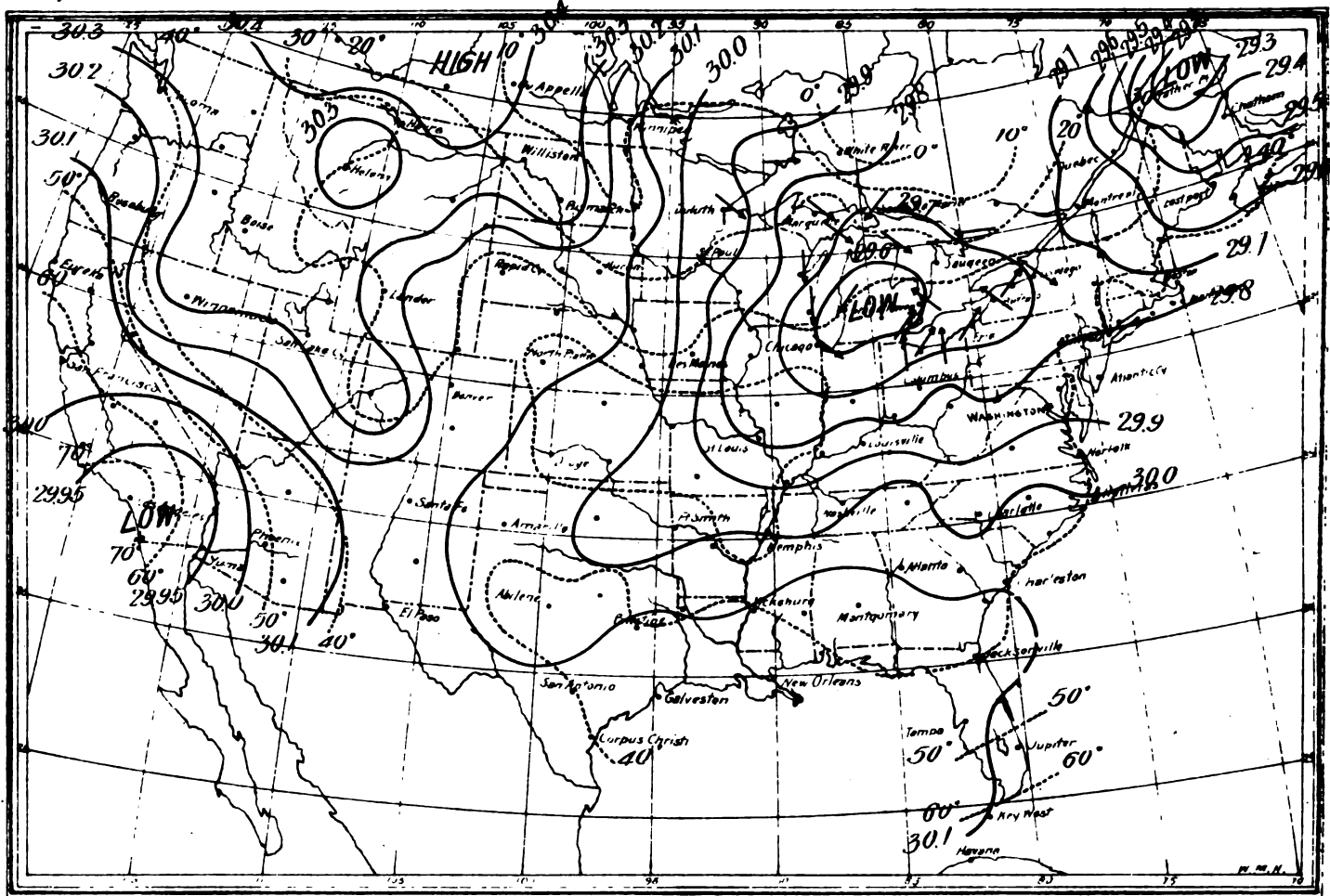


Chart DCOOXX.

November 13, 1900—8 p. m.

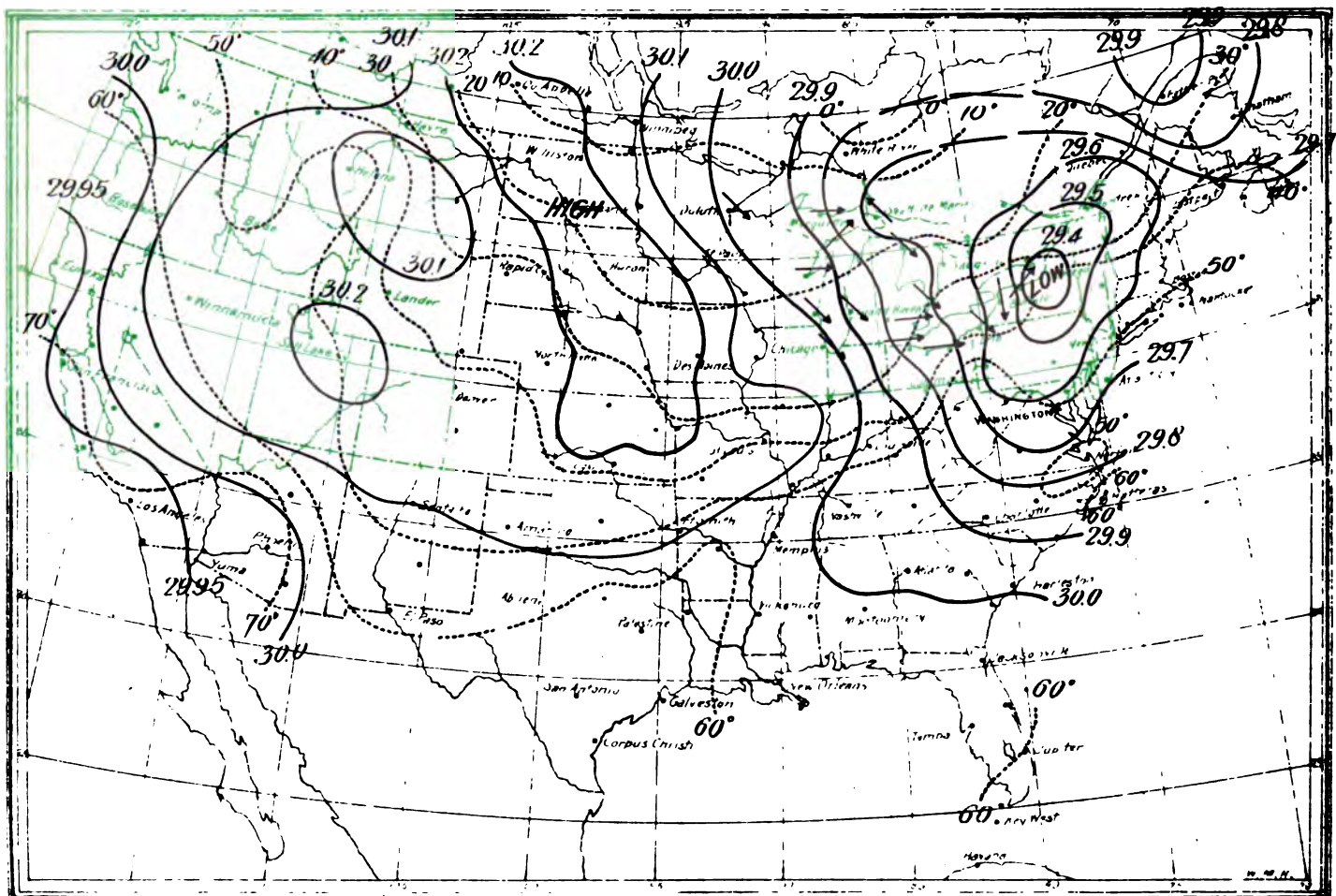


Chart DCCXXI.

November 18, 1900—8 a. m.

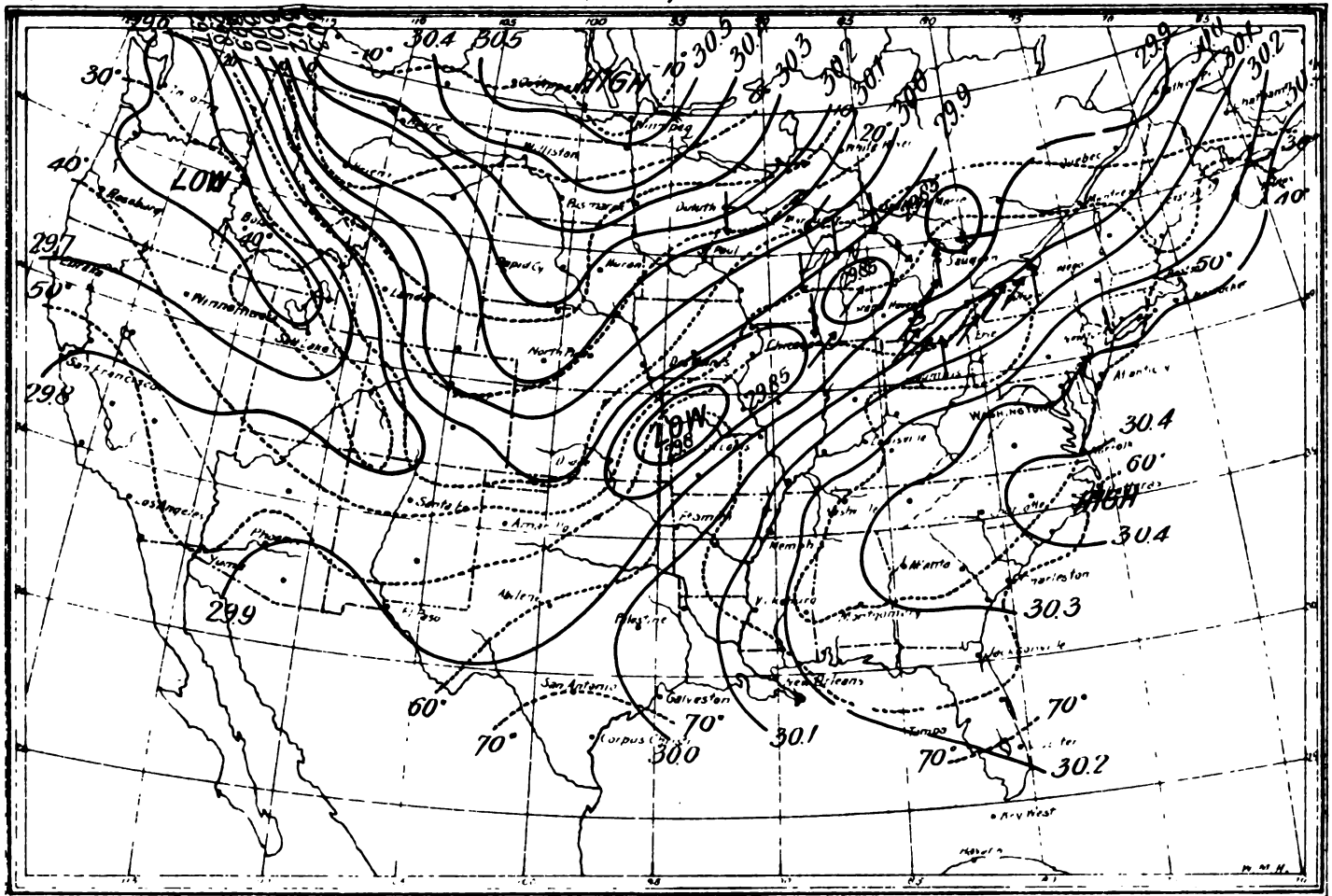


Chart DCCXXII.

November 18, 1900—8 p. m.

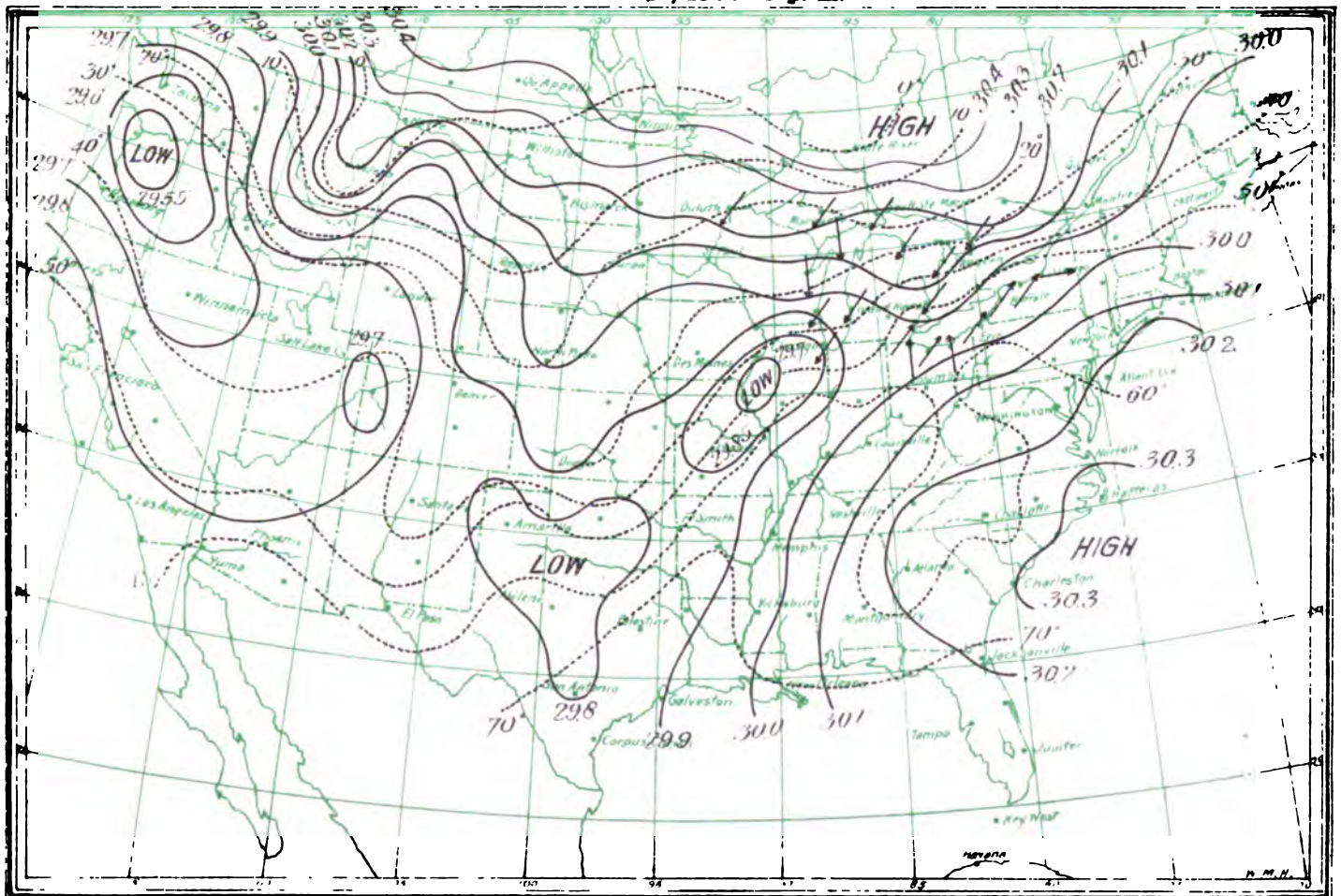


Chart DCCOXXIII.

November 19, 1900—8 a. m.

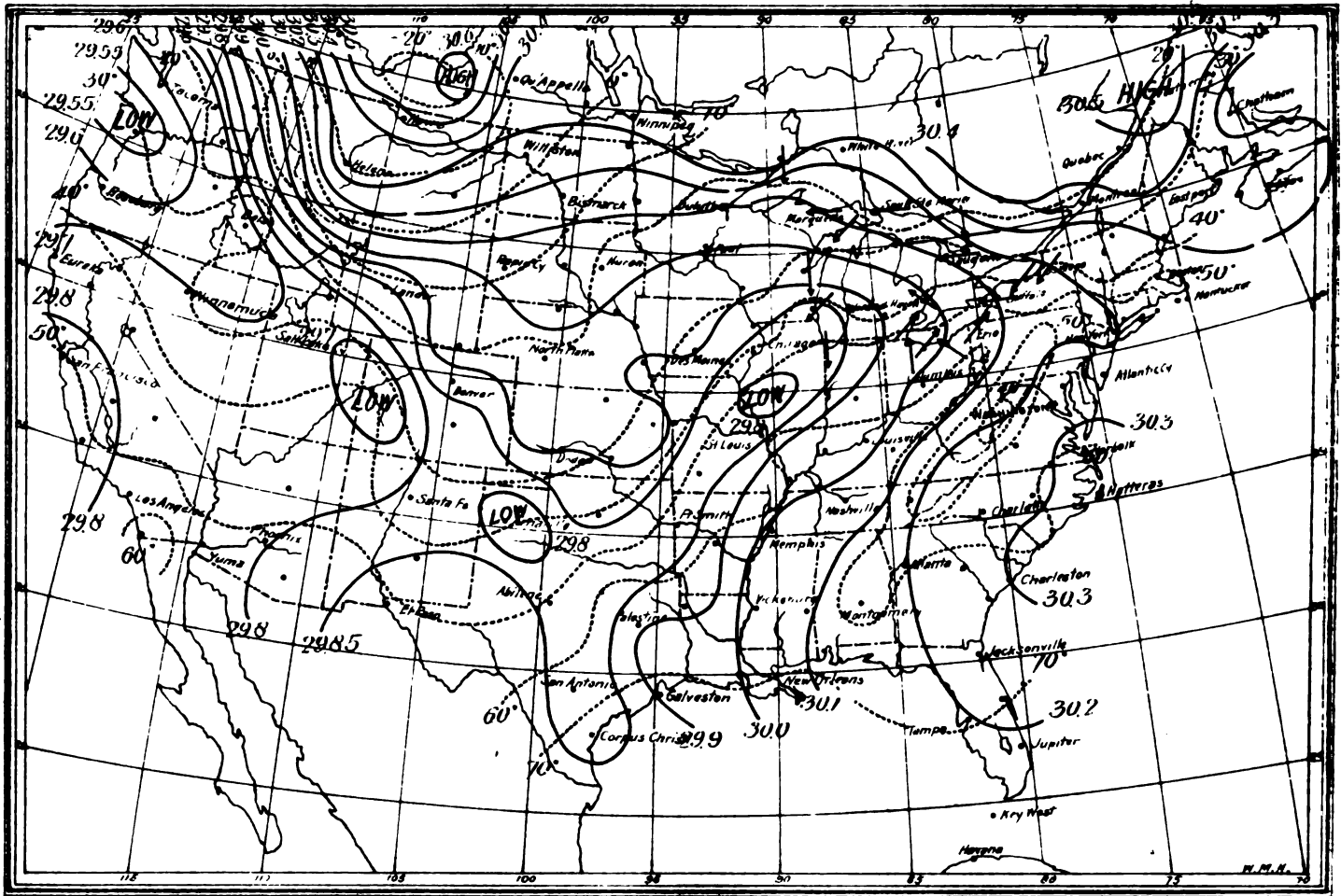


Chart DCCOXXIV.

November 19, 1900—8 p. m.

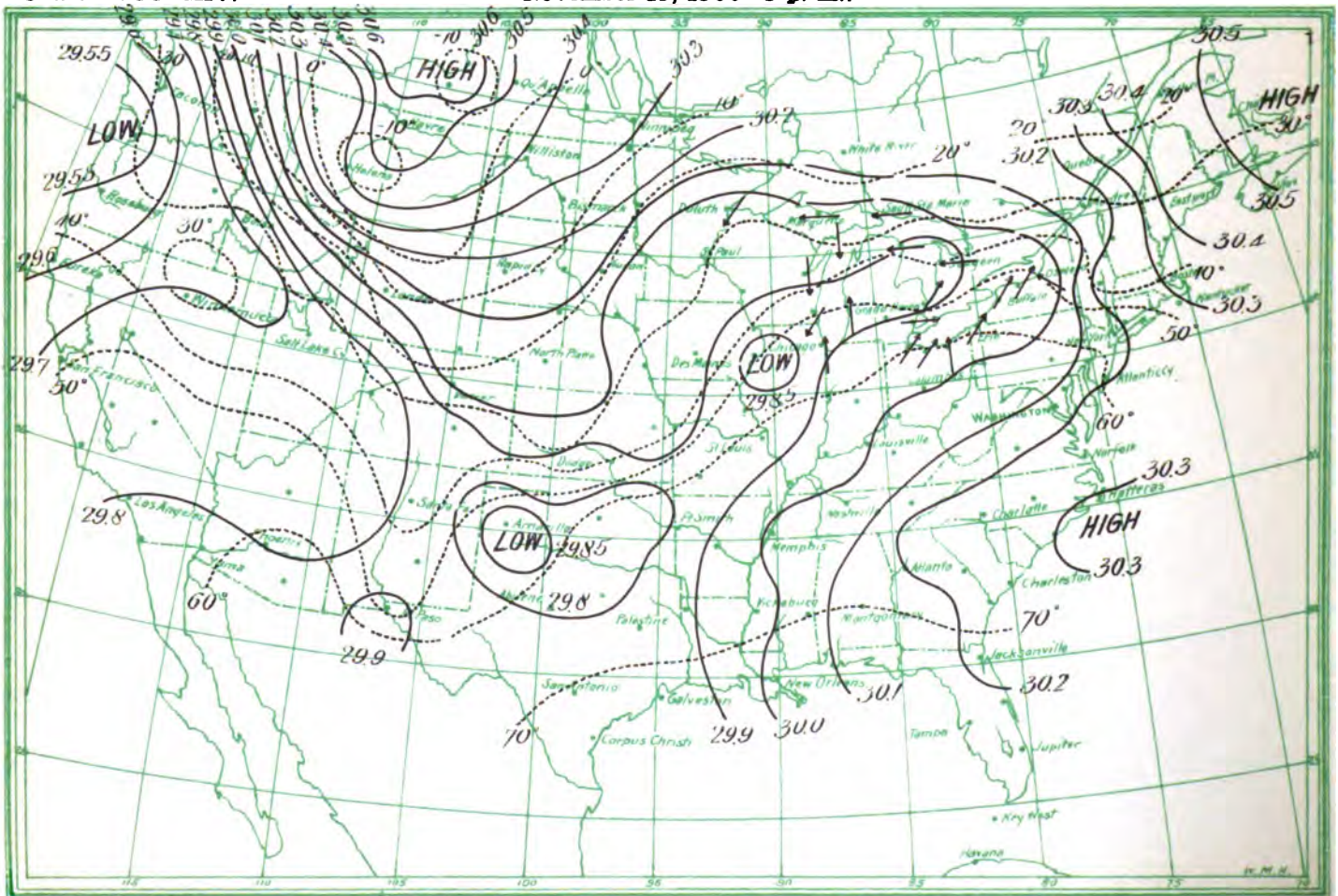


Chart DCCCCXV.

November 20, 1900—8 a. m.

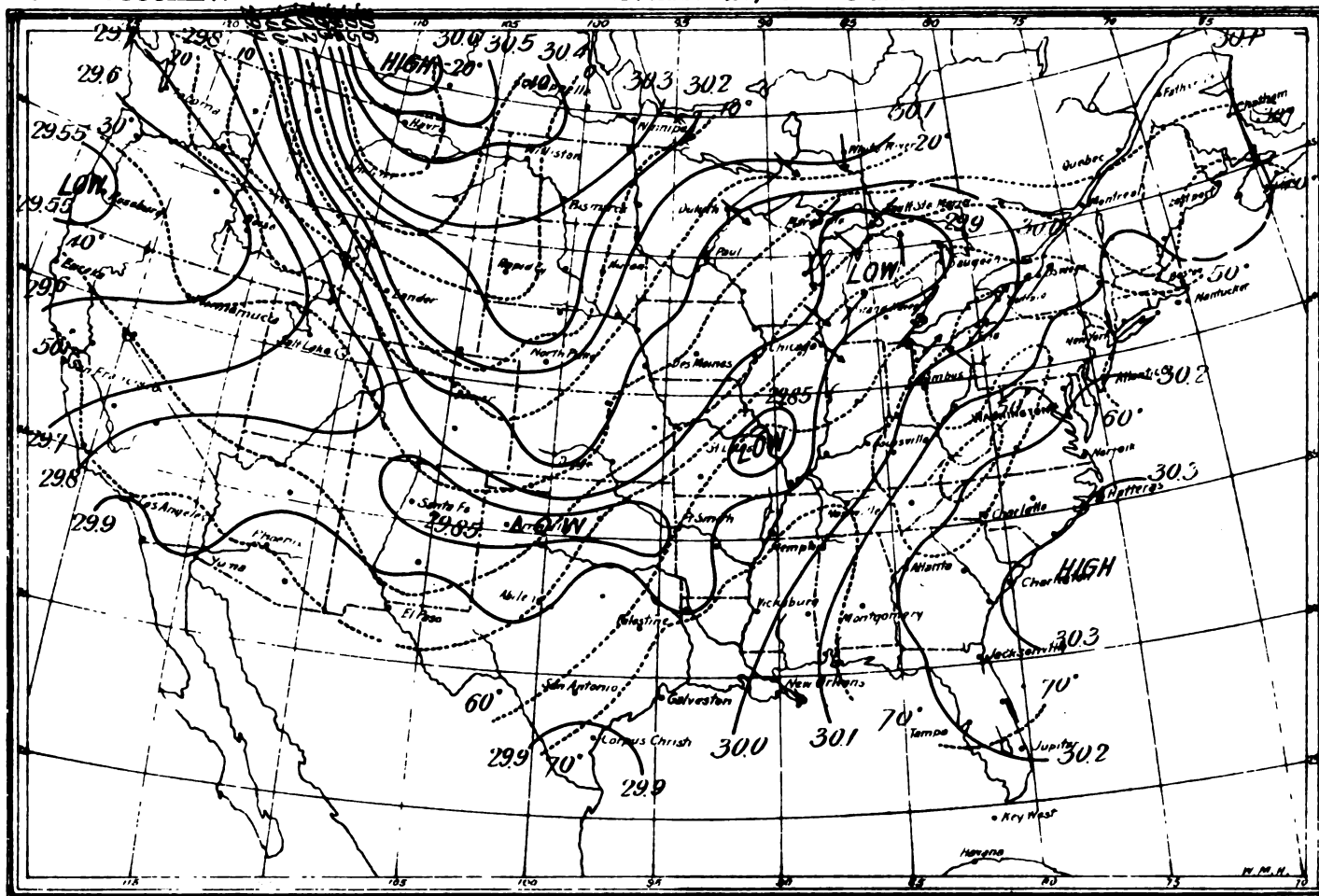


Chart DCCCCXVI.

November 20, 1900—8 p. m.

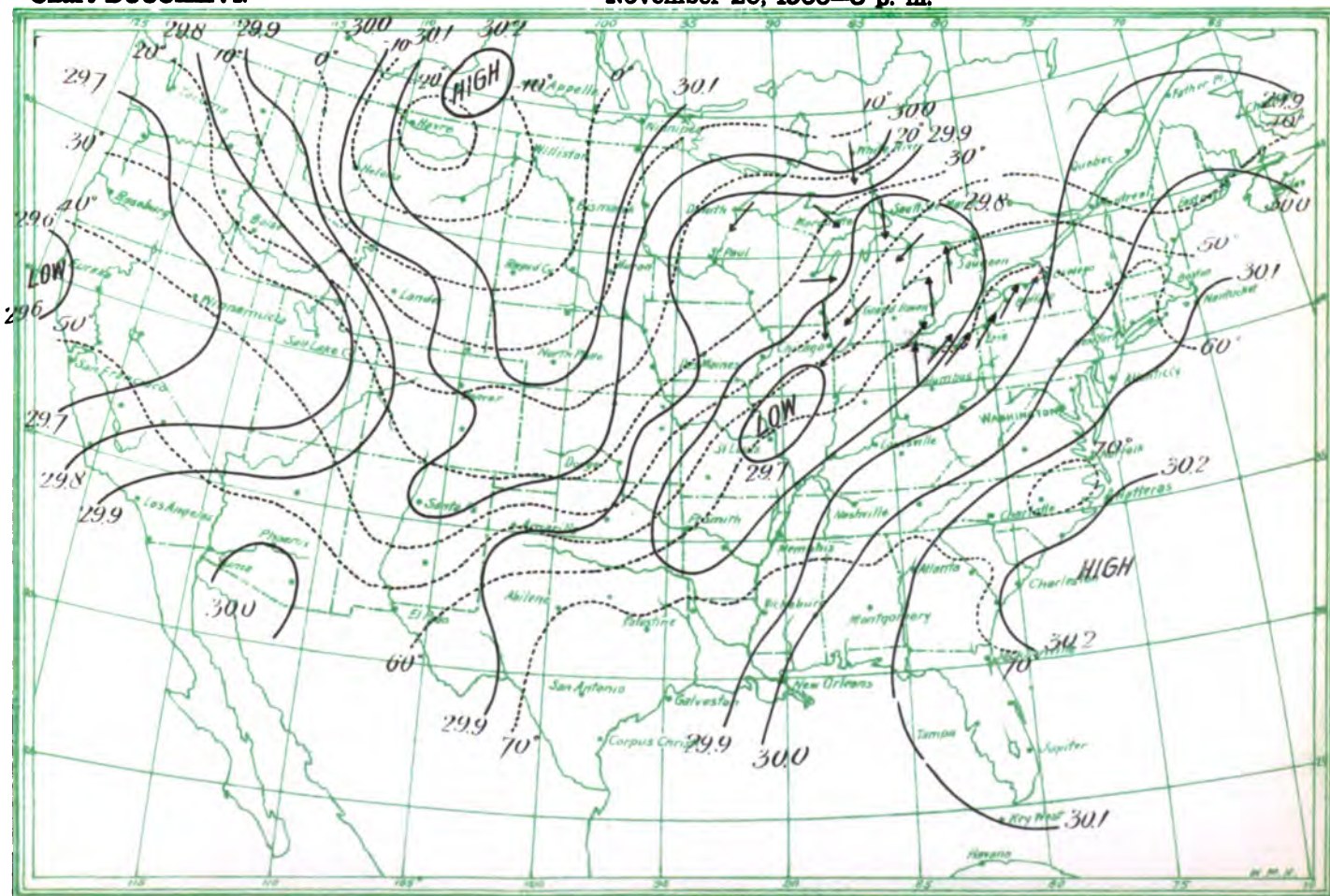


Chart DCCCCXVII.

November 21, 1900—8 a. m.

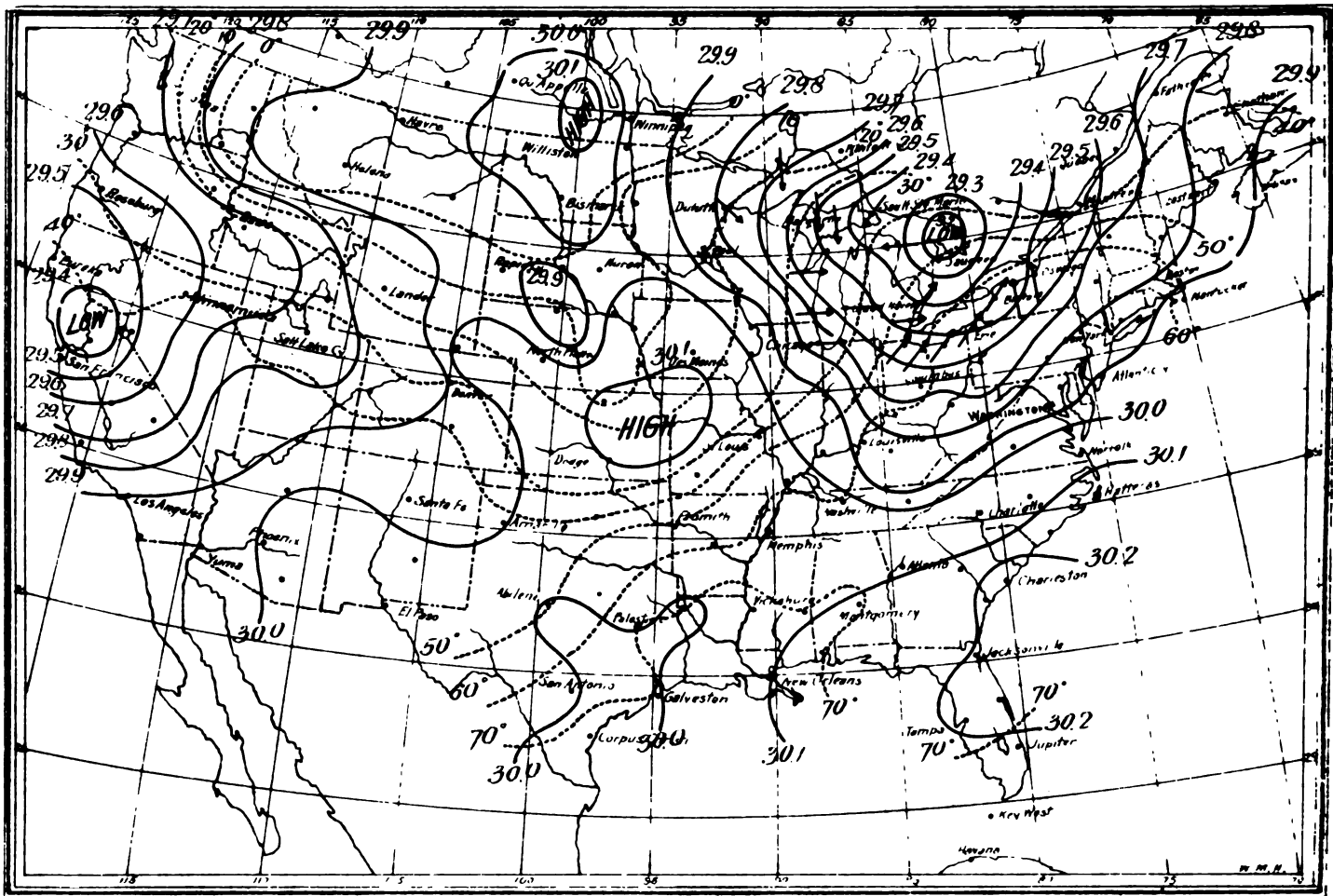


Chart DCCCCXVIII.

November 21, 1900—8 p. m.

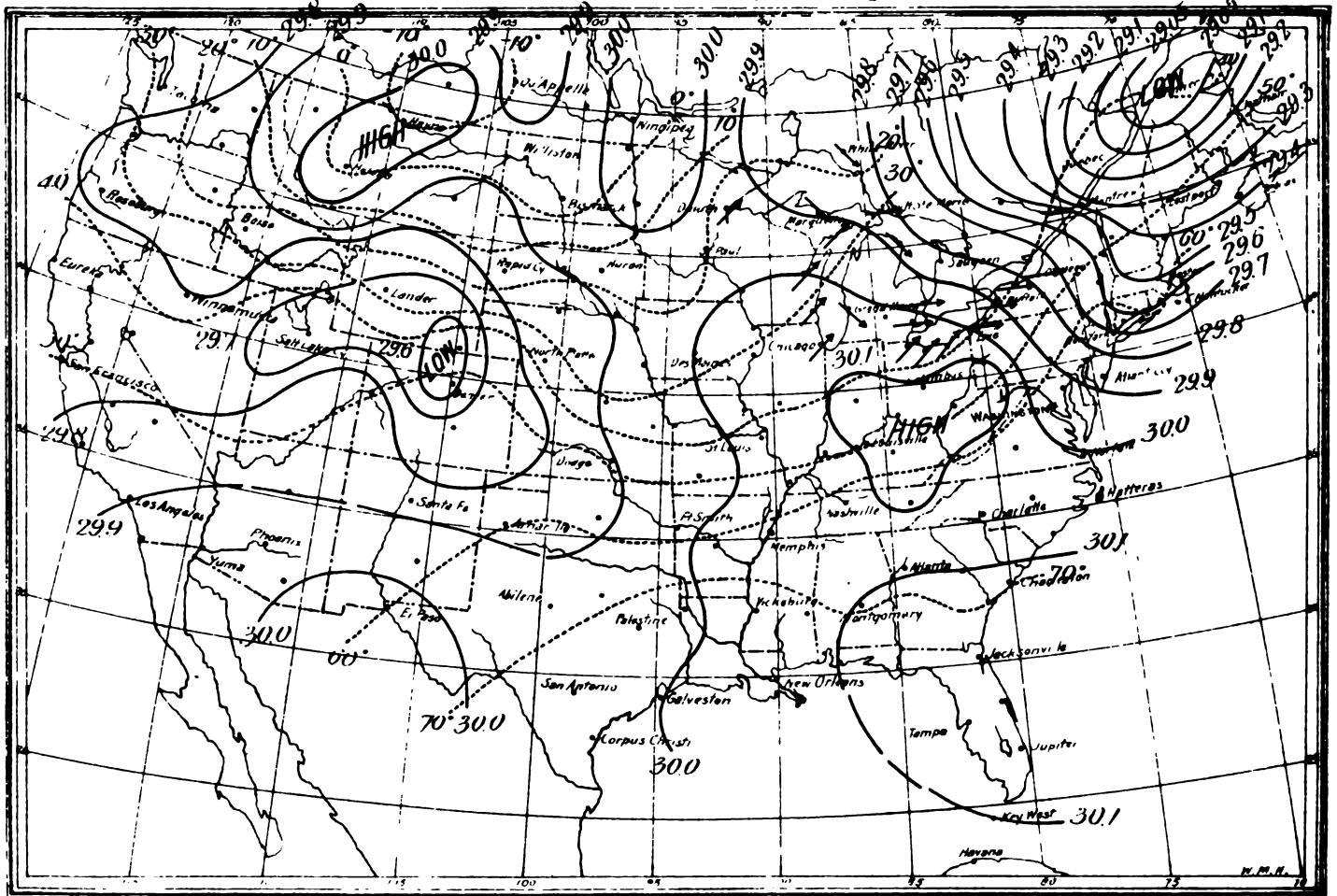


Chart DCCOXXIX.

December 7, 1876—4:35 p. m.

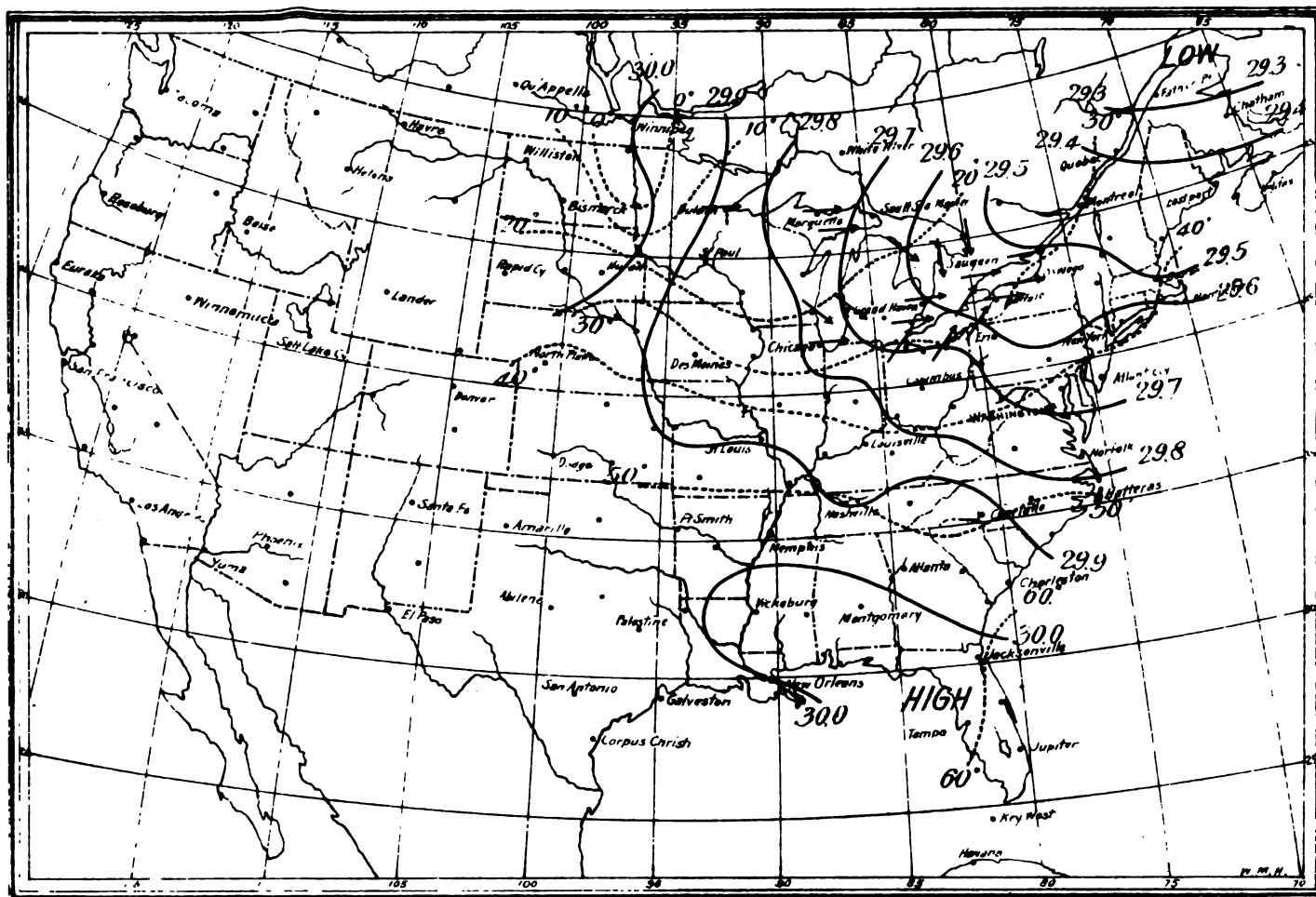


Chart DCCOXXX.

December 8, 1876—7:35 a. m.

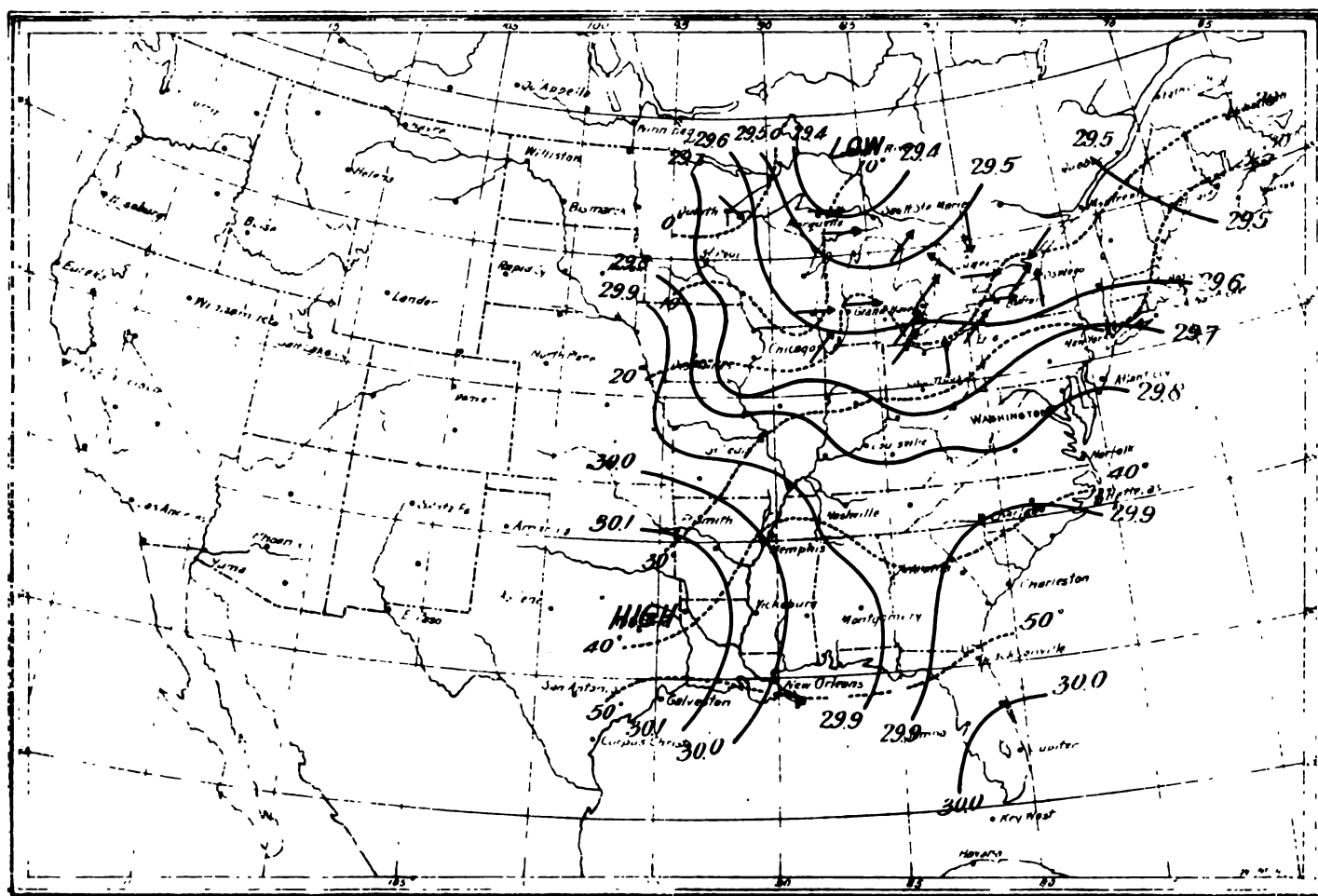


Chart D000XXXI.

December 8, 1876—4:35 p. m.

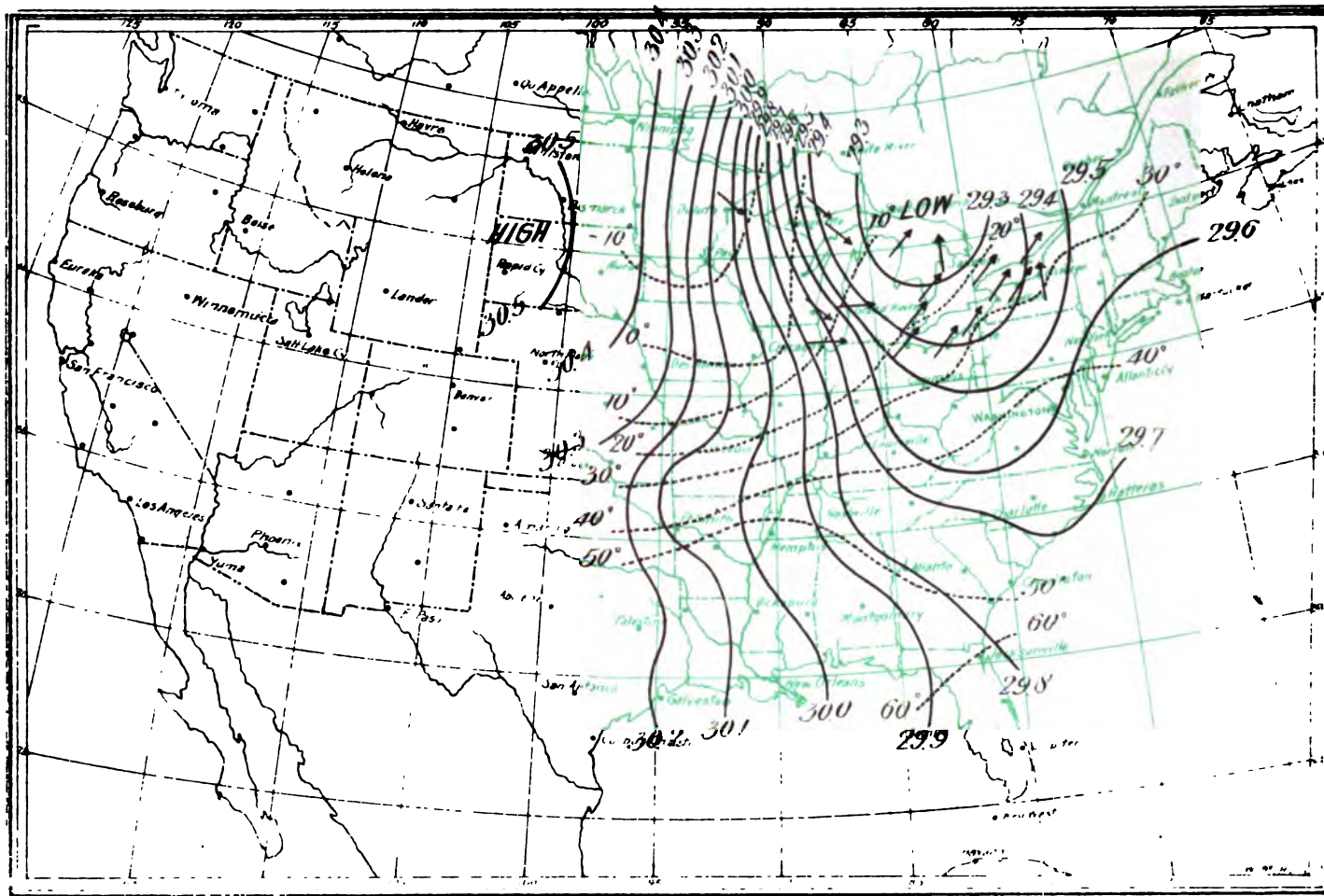


Chart D000XXXII.

December 9, 1876—7:35 a. m.

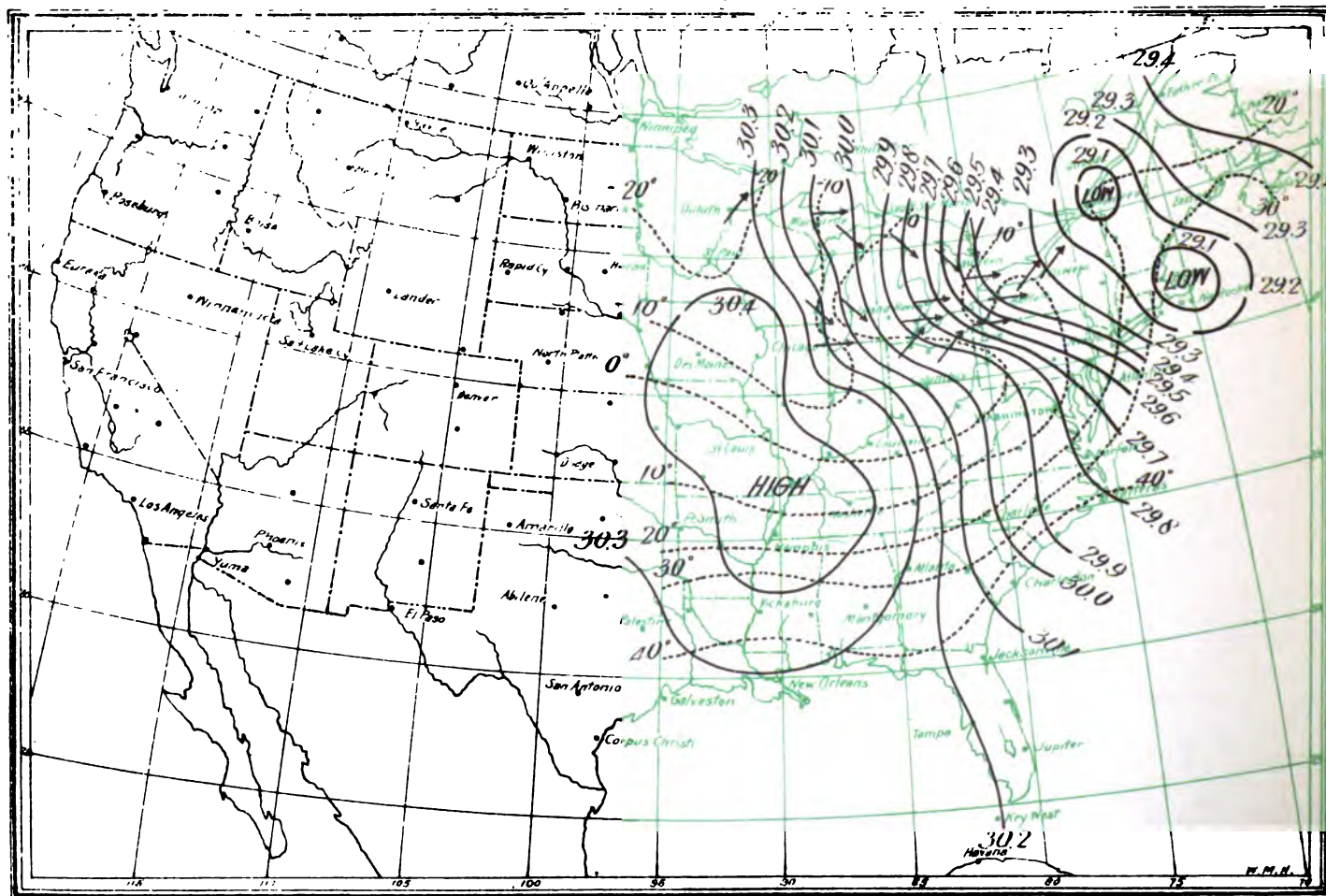


Chart DCCCCXXIII.

December 28, 1876—7:35 a. m.

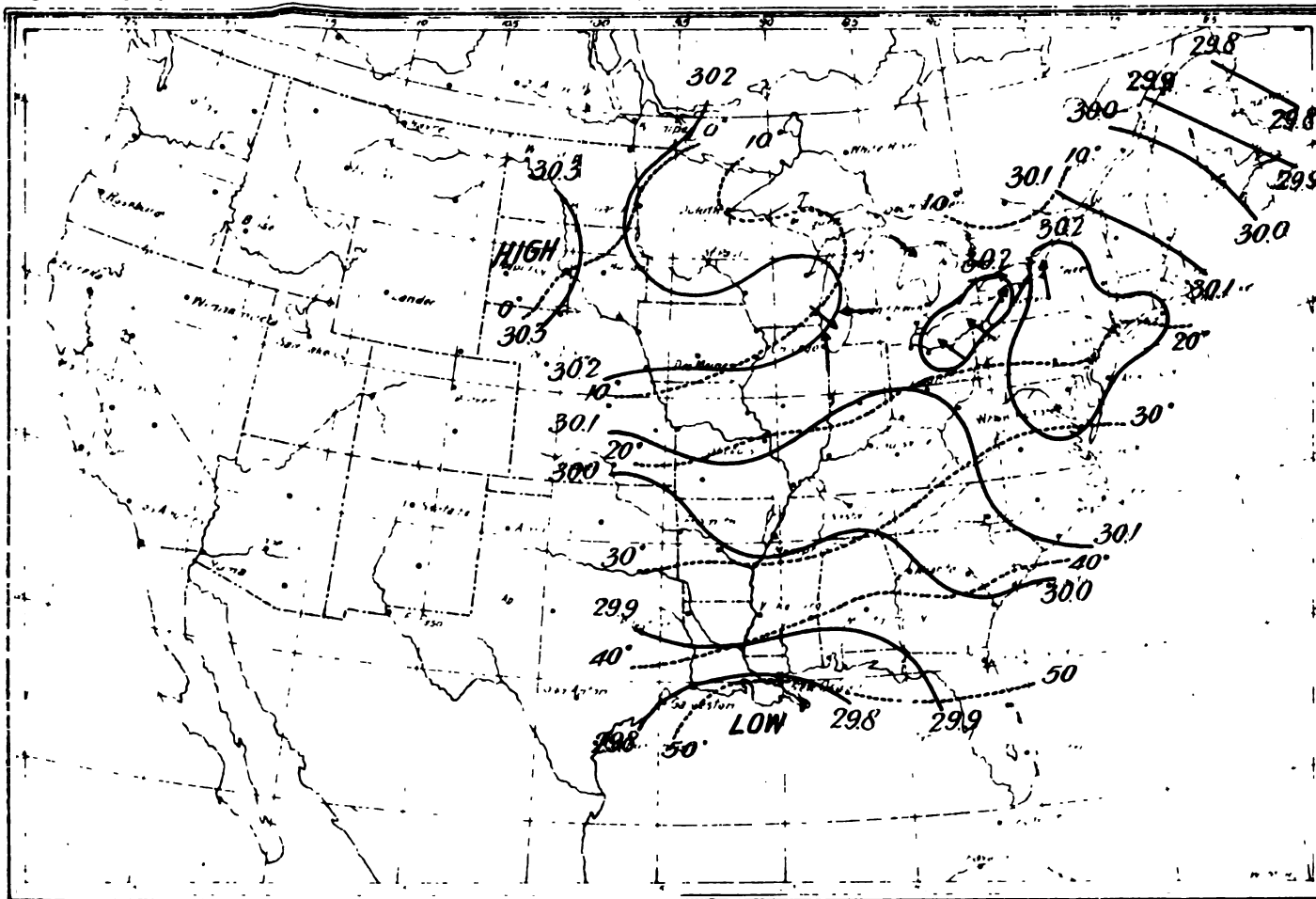


Chart DCCCCXXIV.

December 28, 1876—4:35 p. m.

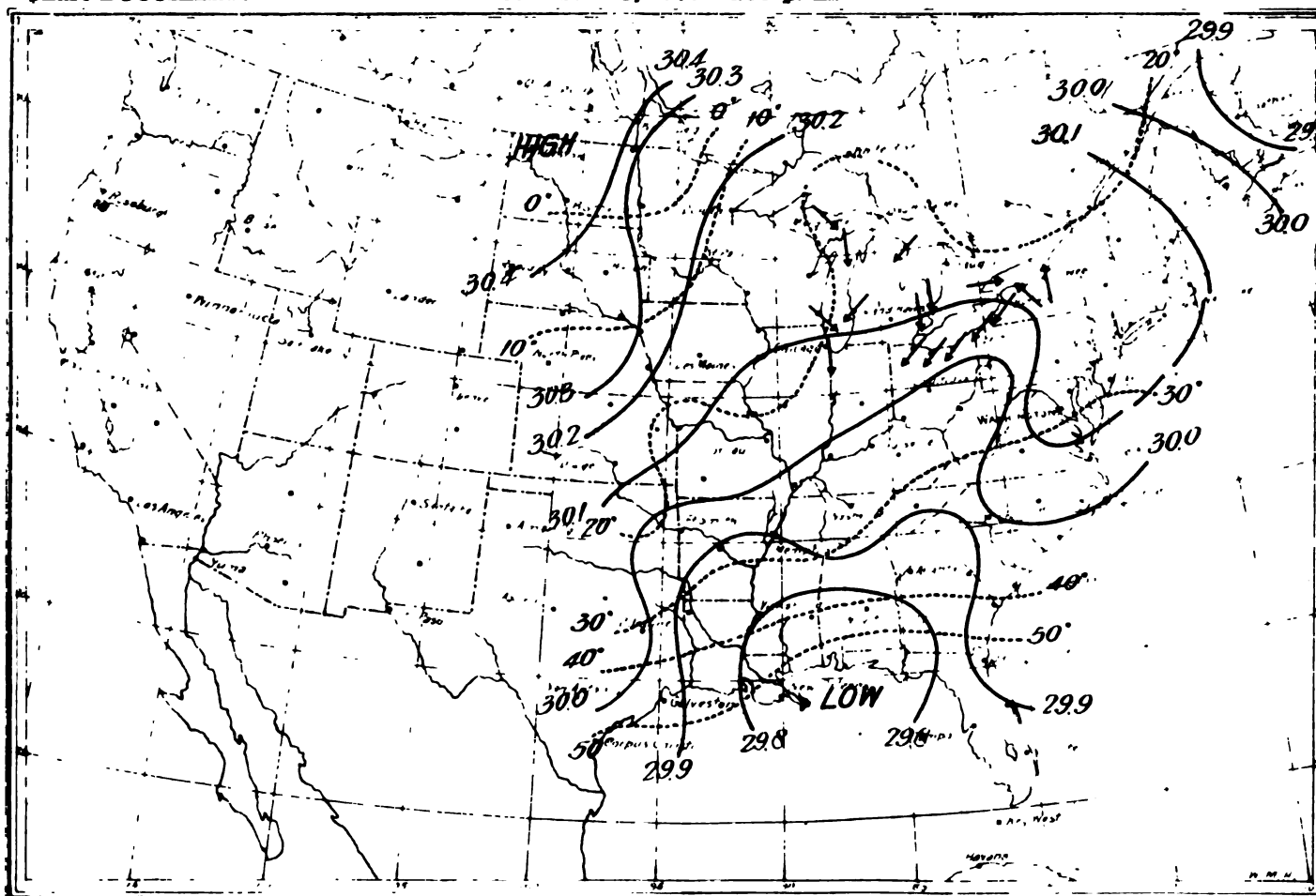


Chart DCCCXXXV.

December 29, 1876—7:35 a. m.

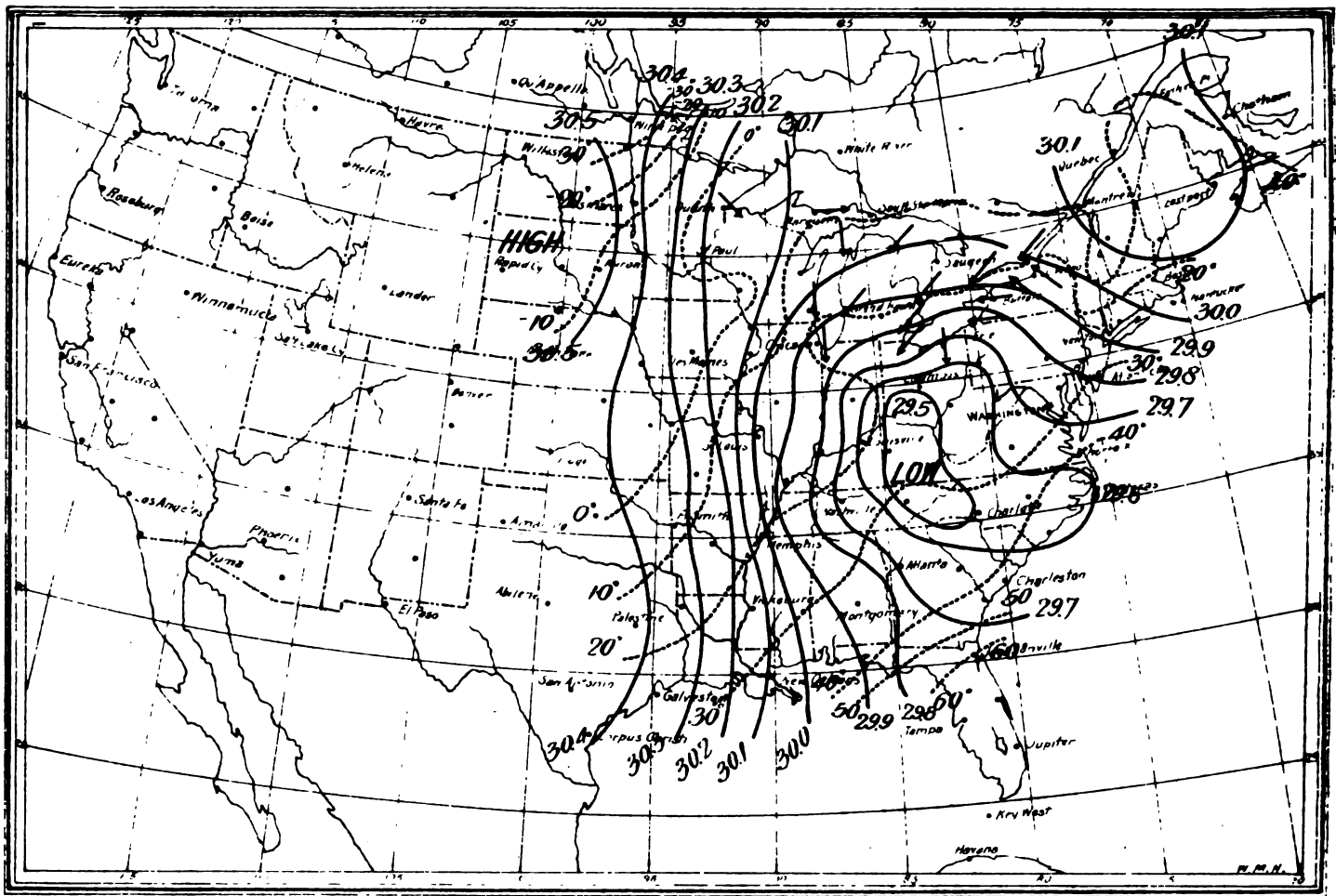


Chart DCCCXXXVI.

December 29, 1876—4:35 p. m.

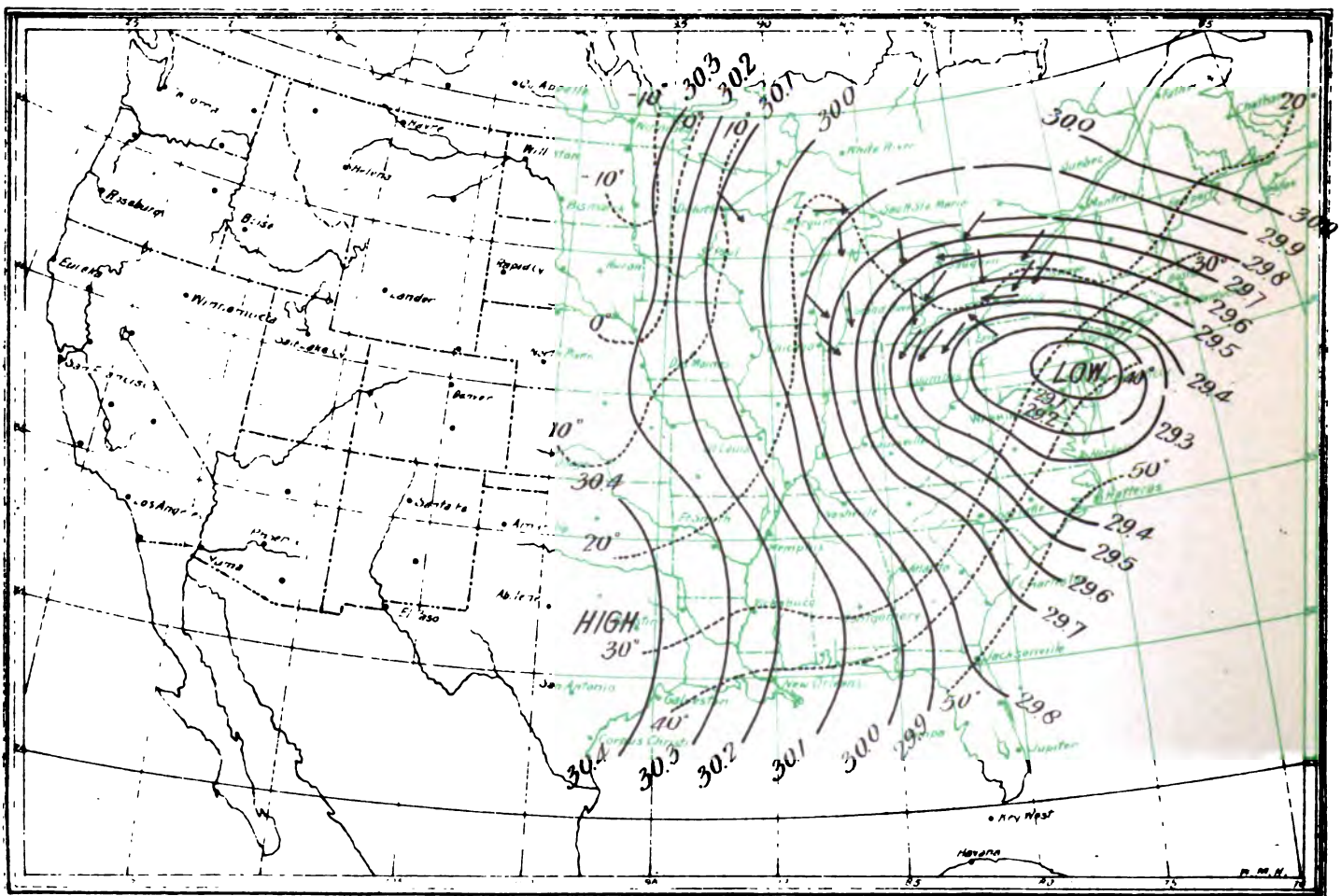


Chart DCOOXXXVII.

December 4, 1877—7:35 a. m.

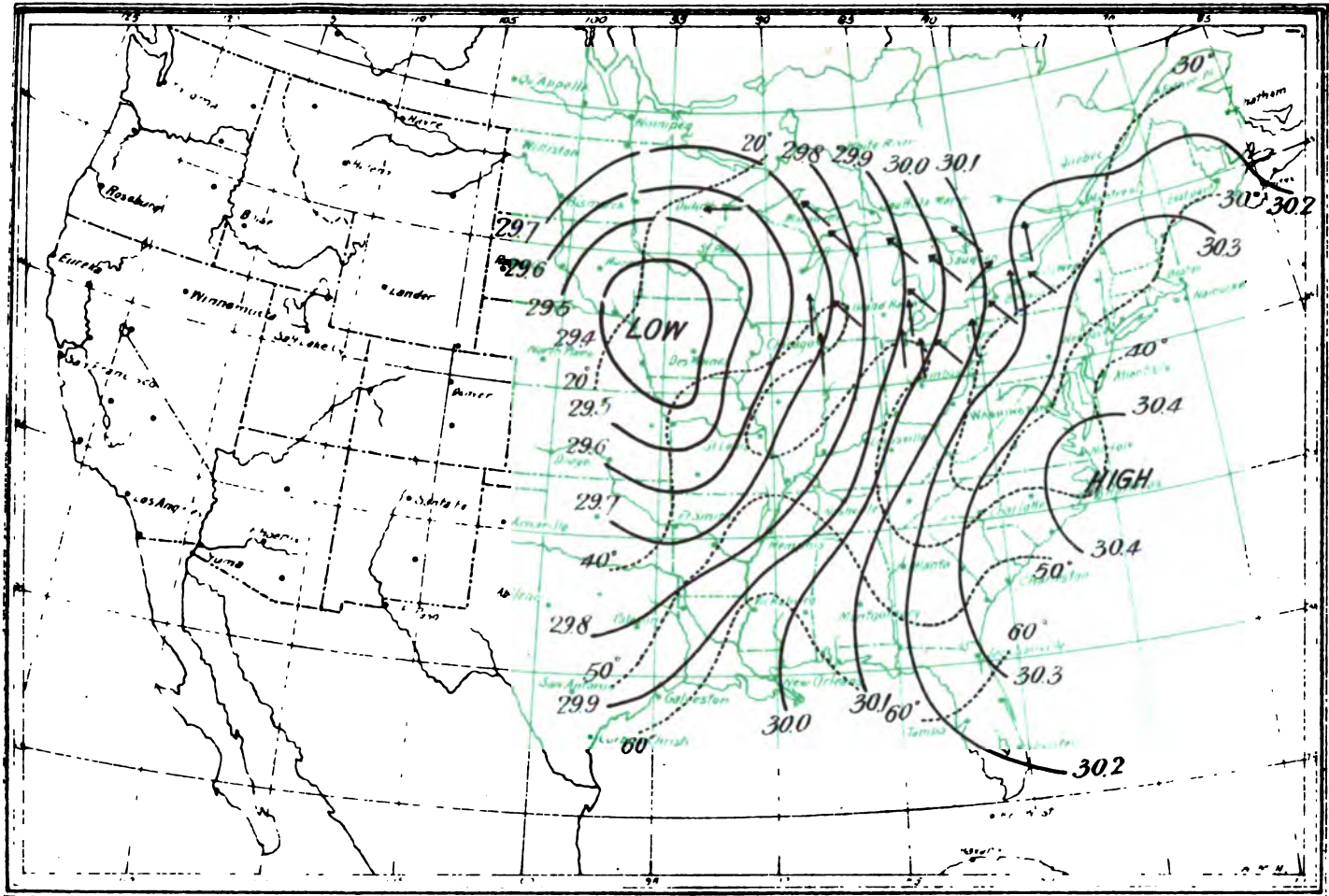
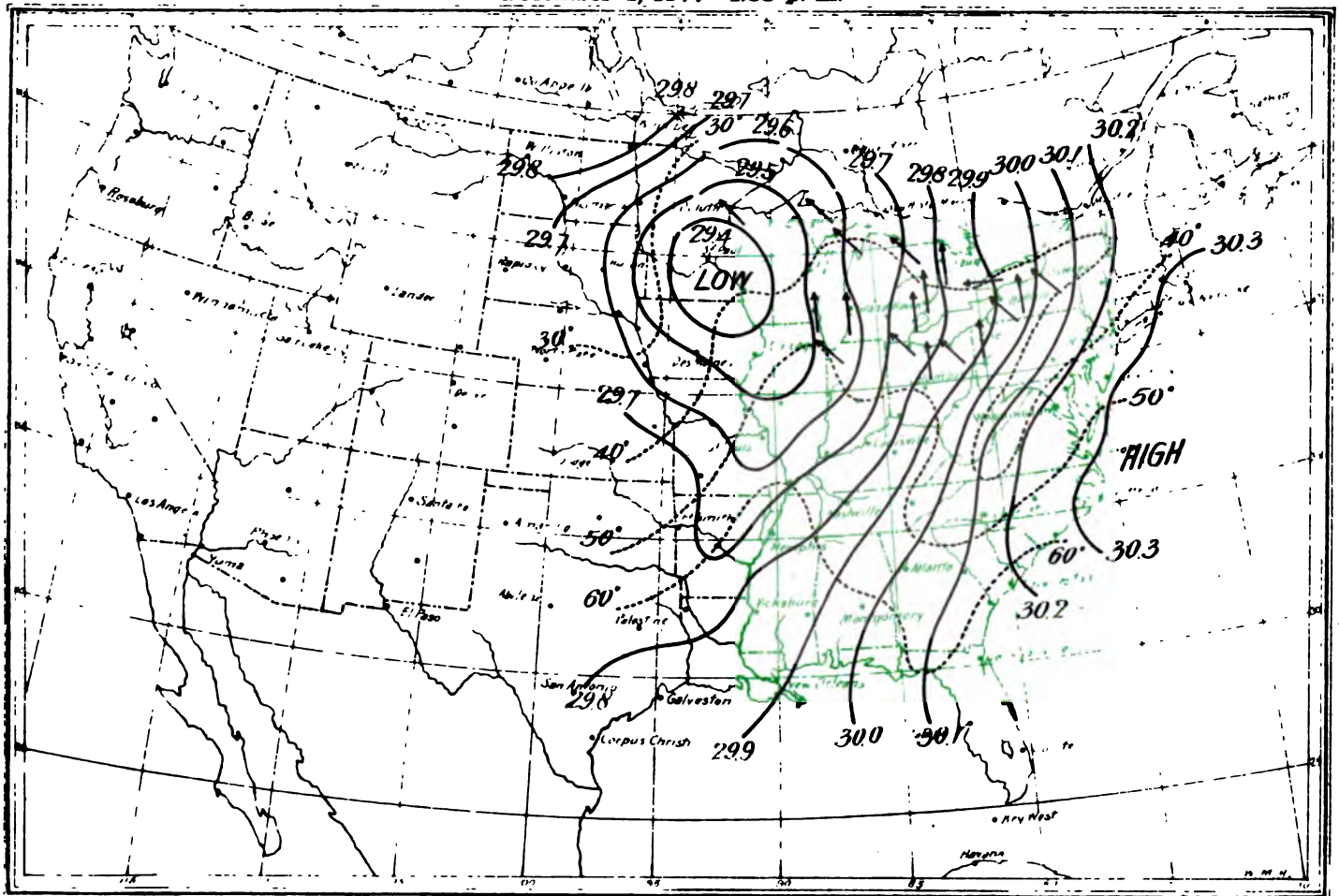


Chart DCOOXXXVIII.

December 4, 1877—4:35 p. m.



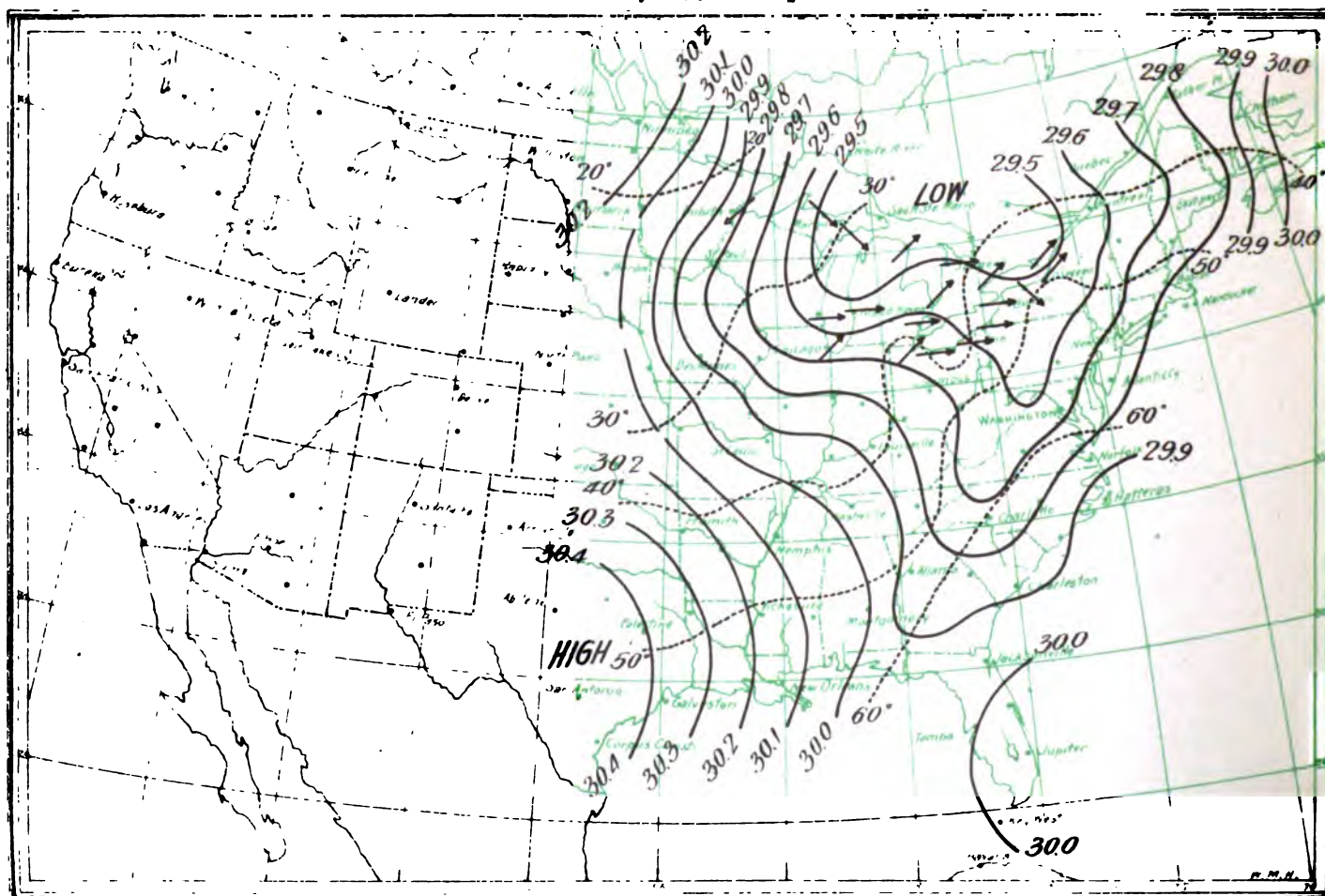
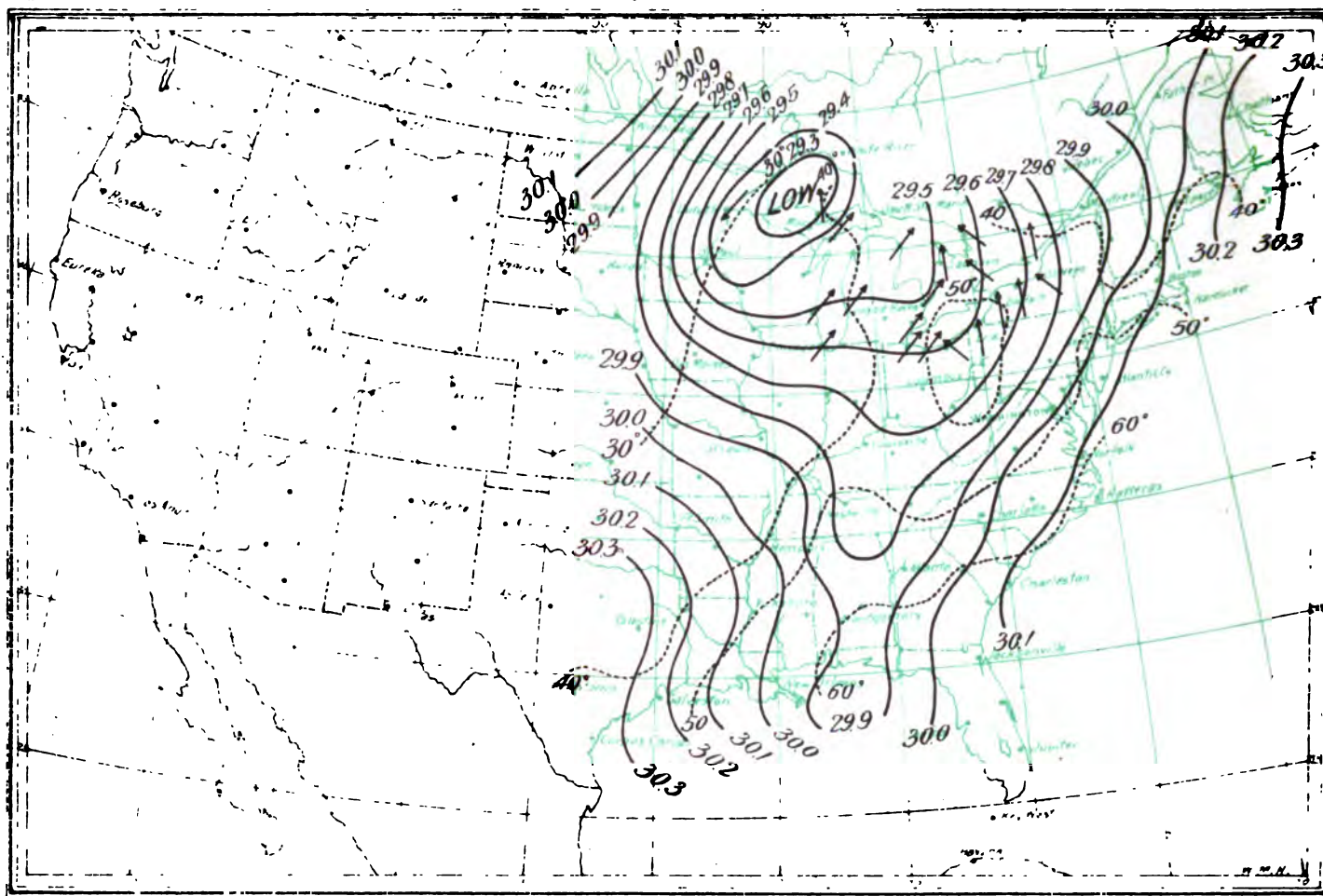


Chart D000XLI.

December 9, 1878—7:35 a. m.

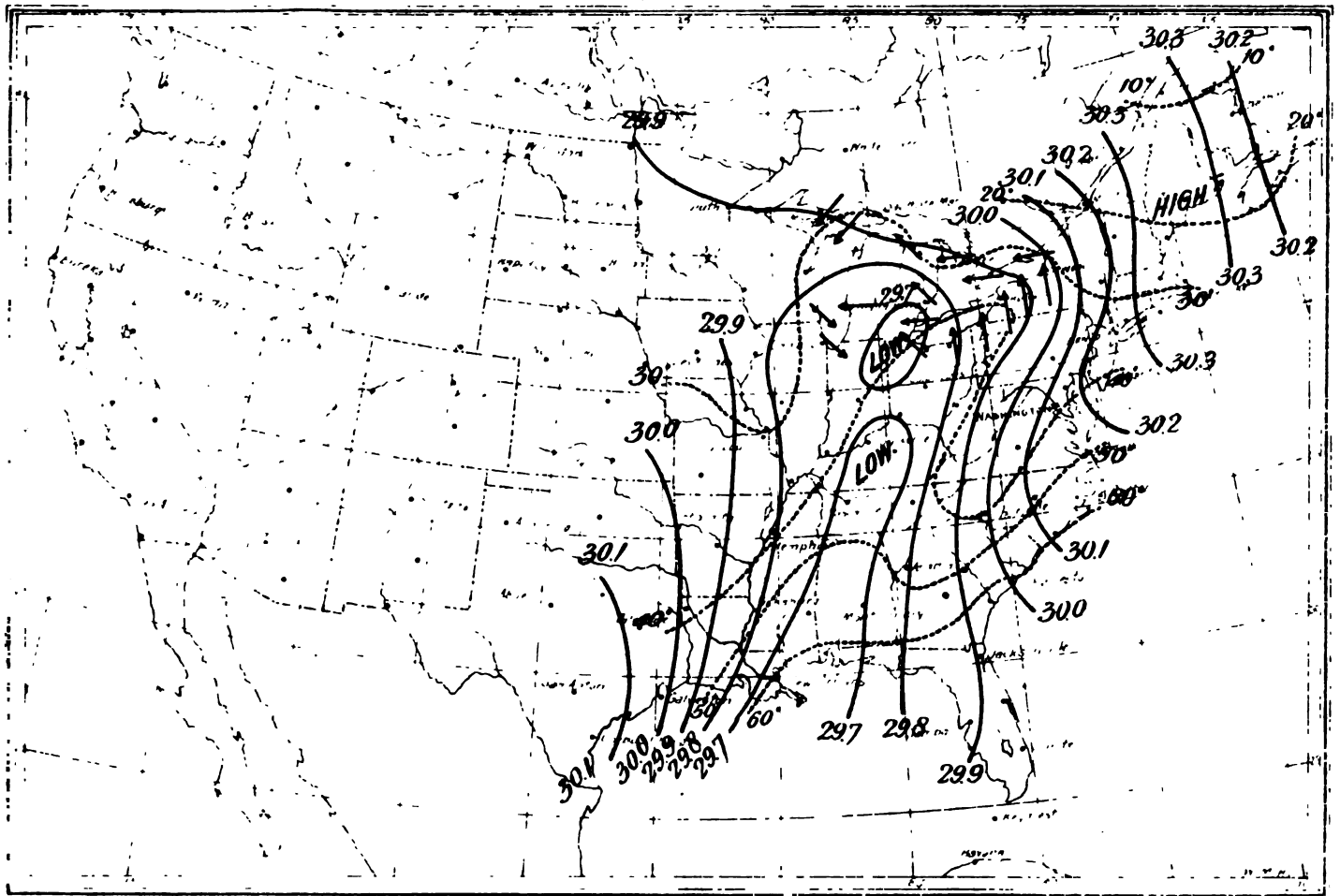
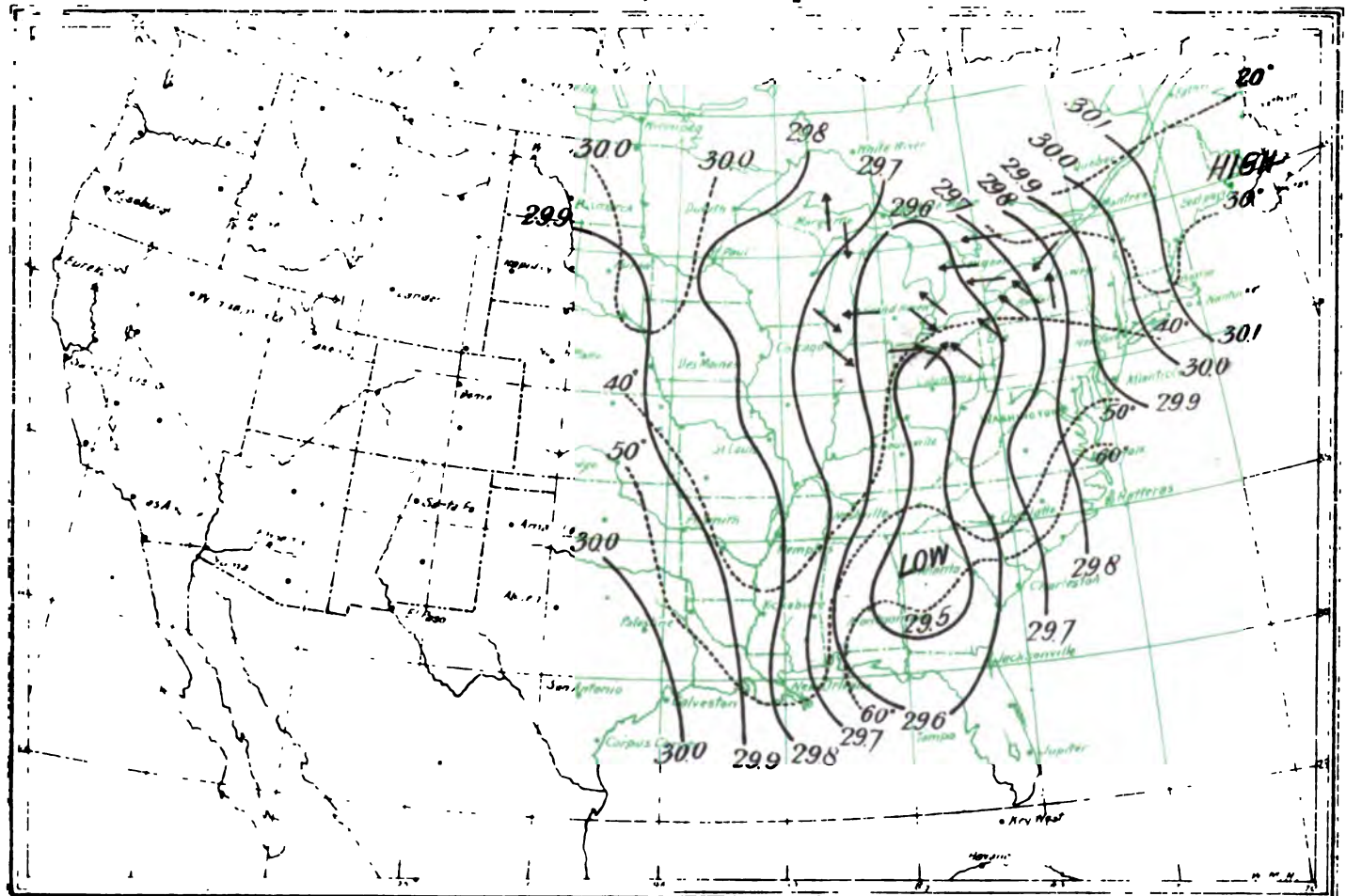
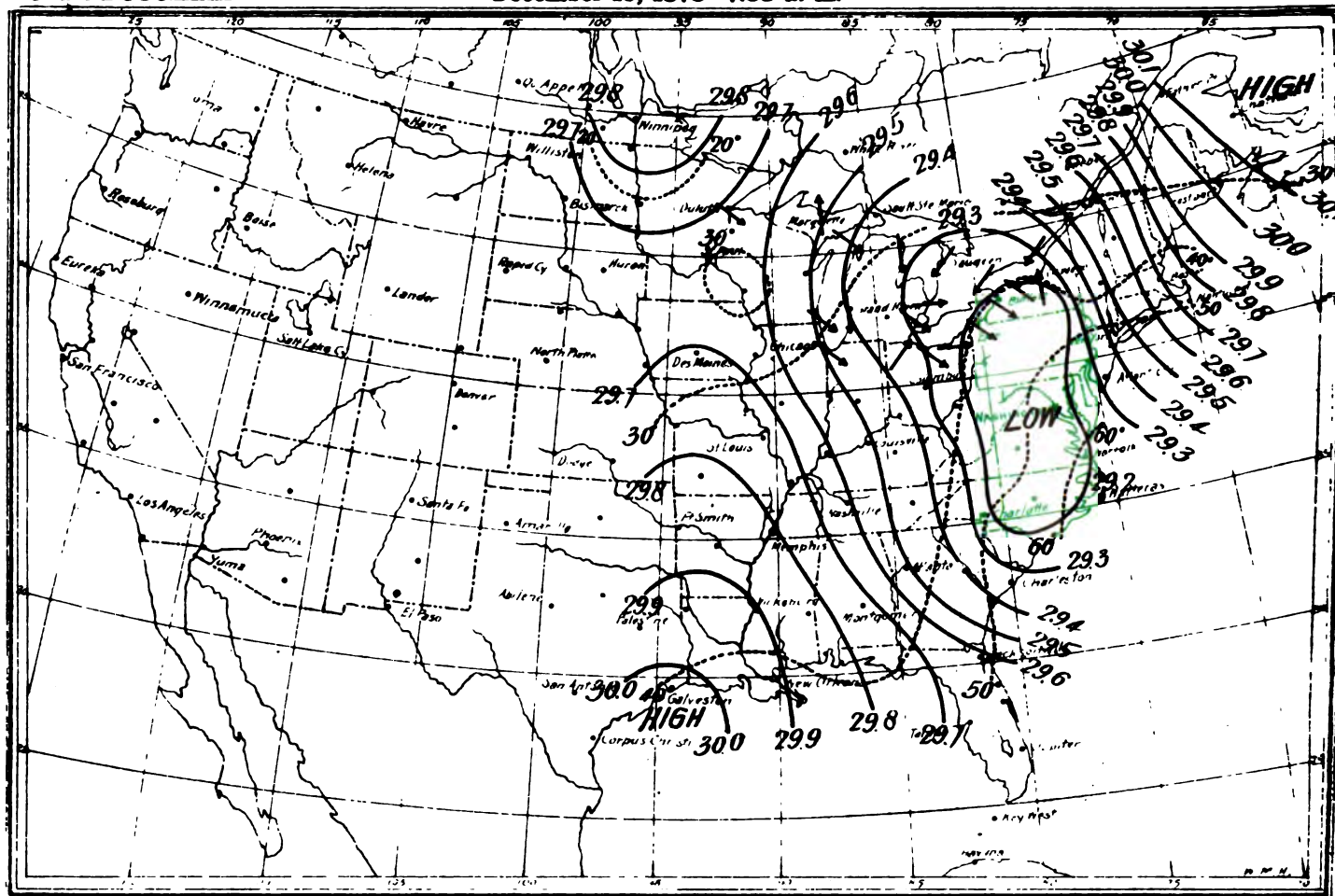


Chart D000XLII.

December 9, 1878—4:35 p. m.



December 10, 1878—7:35 a. m.



December 10, 1878—4:35 p. m.

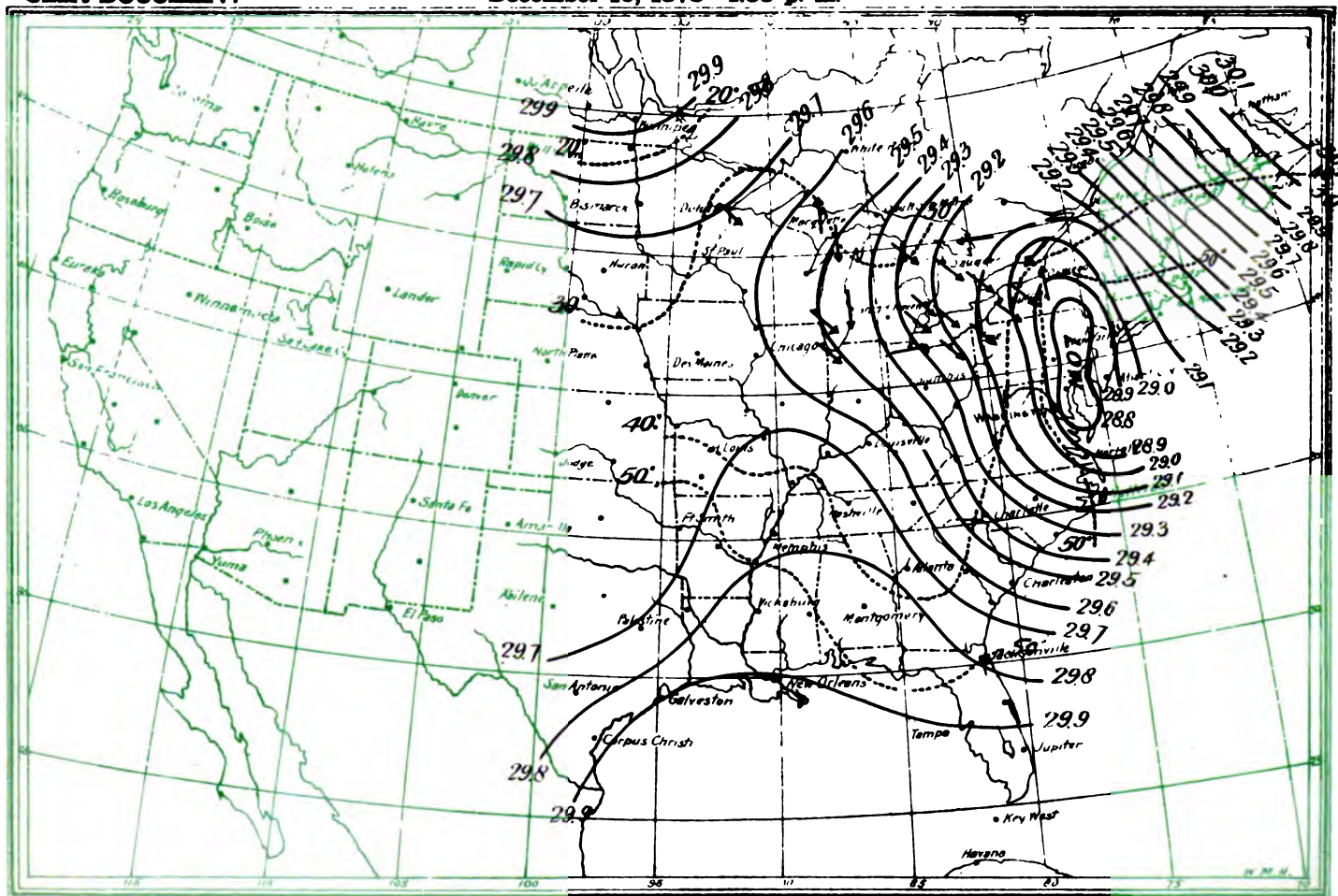


Chart DCCCLV.

December 20, 1878—7:35 a. m.

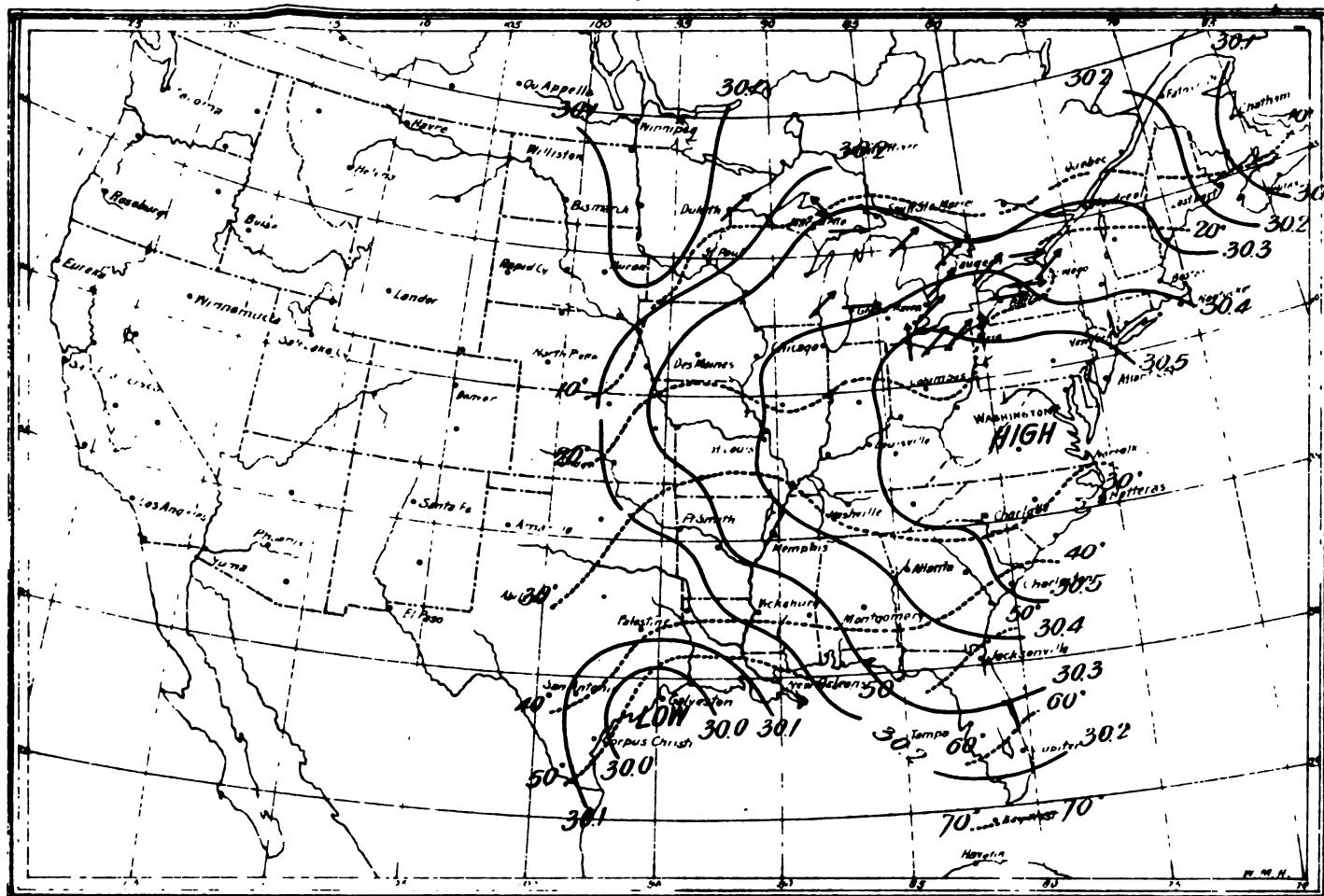


Chart DCCCLVI.

December 20, 1878—4:35 p. m.

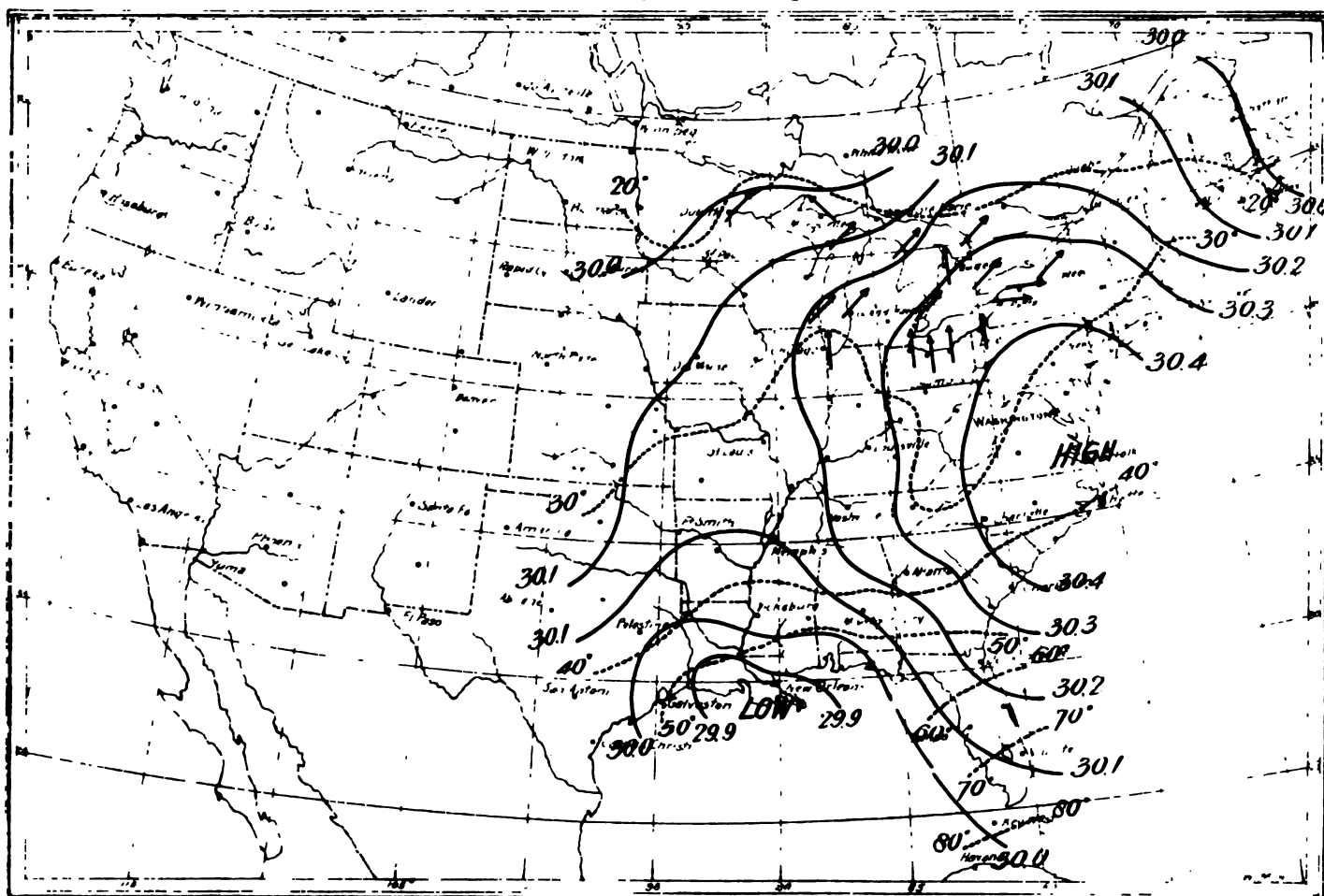


Chart DCOOXLVII.

December 21, 1878—7:35 a. m.

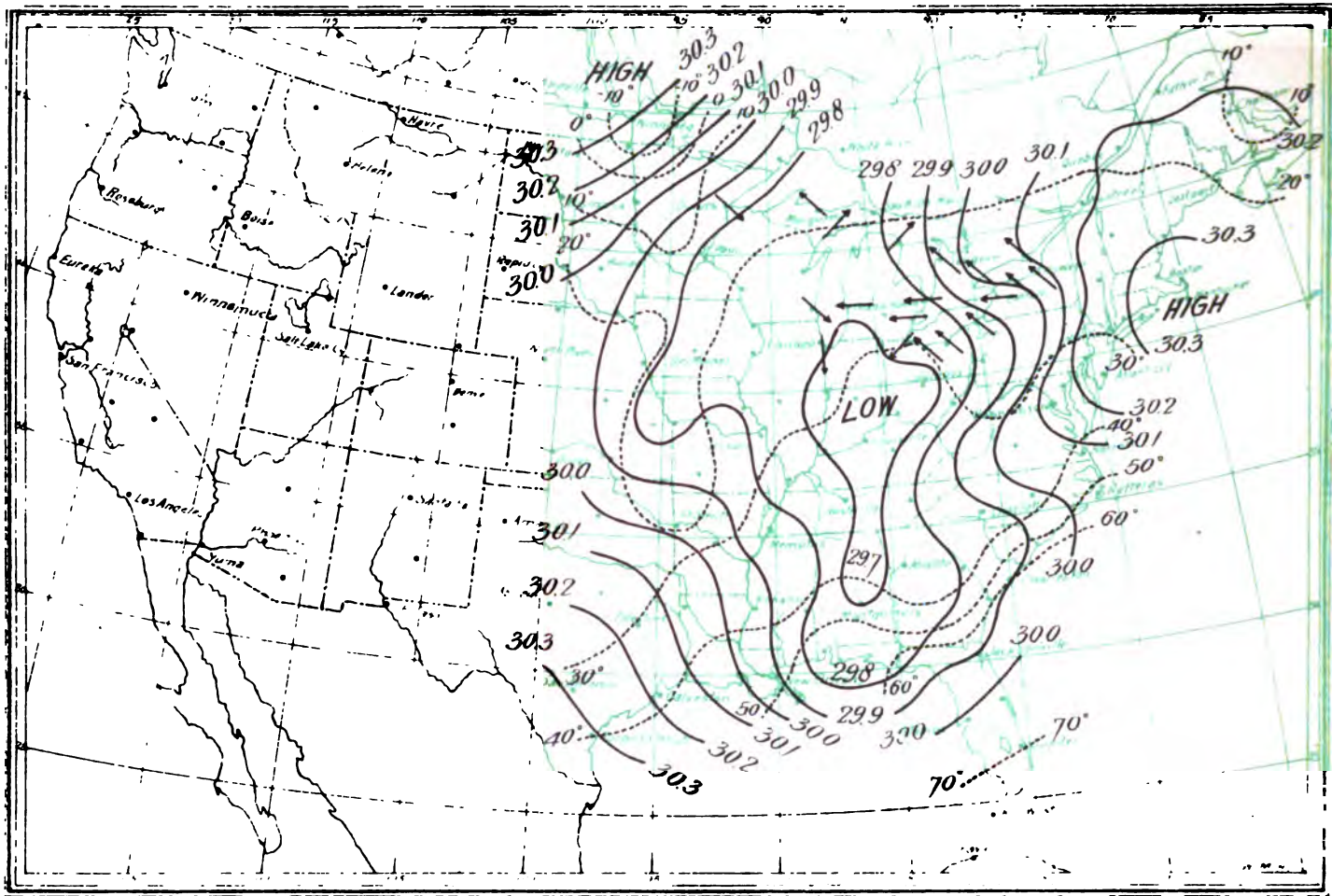


Chart DCOOXLVIII.

December 21, 1878—4:35 p. m.

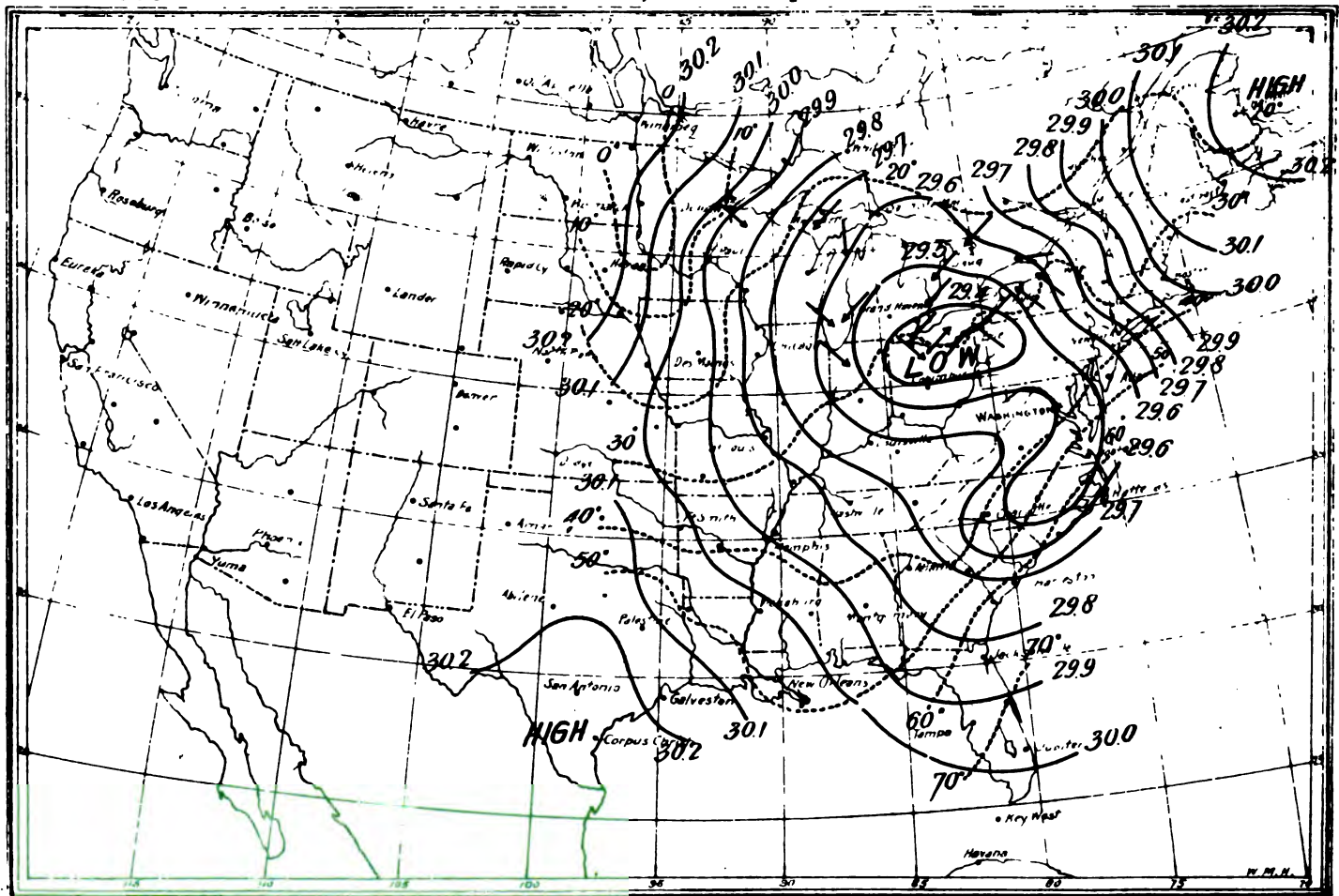


Chart DCCCLXIX.

December 9, 1879—7 a. m.

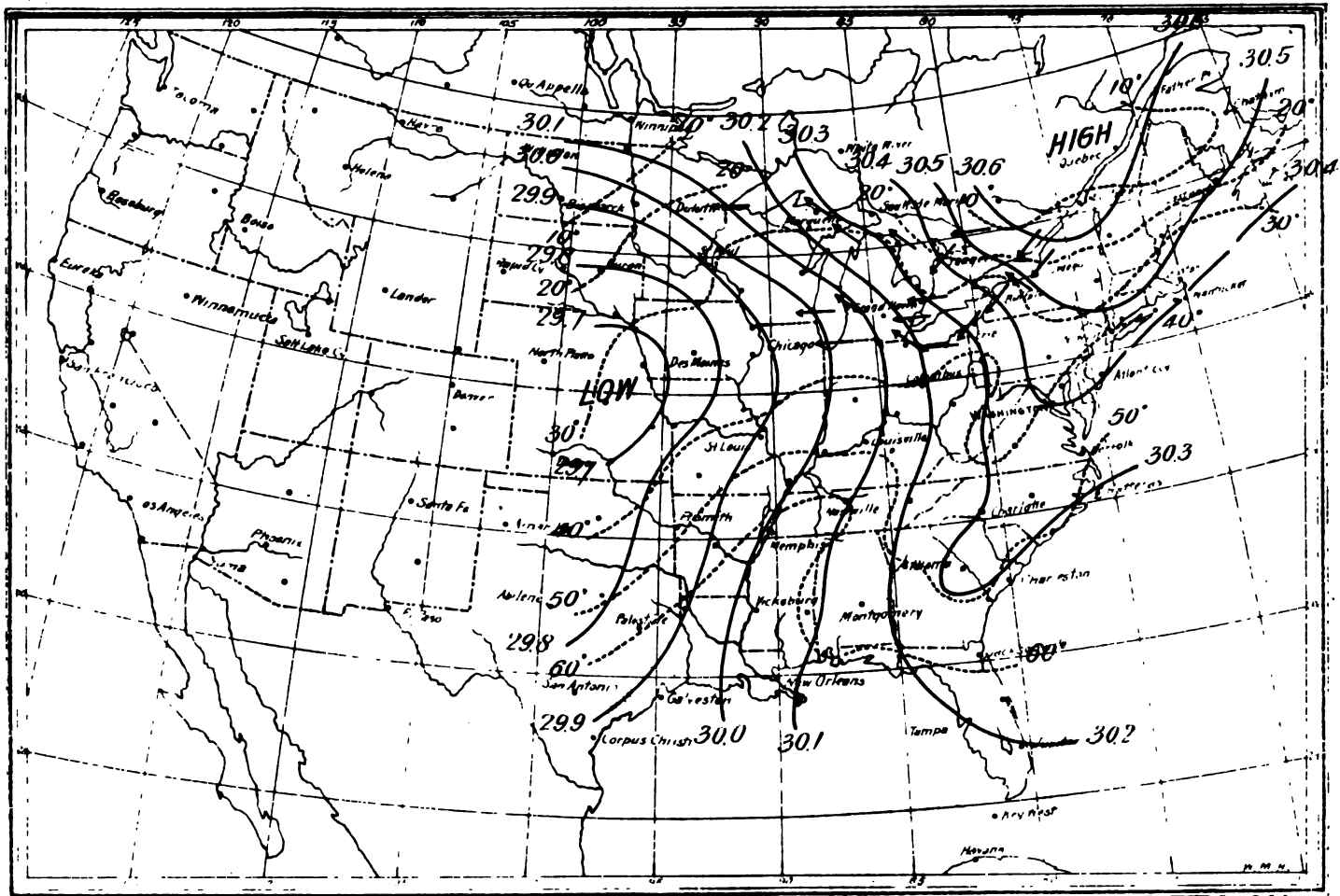


Chart DCCCL.

December 9, 1879—3 p. m.

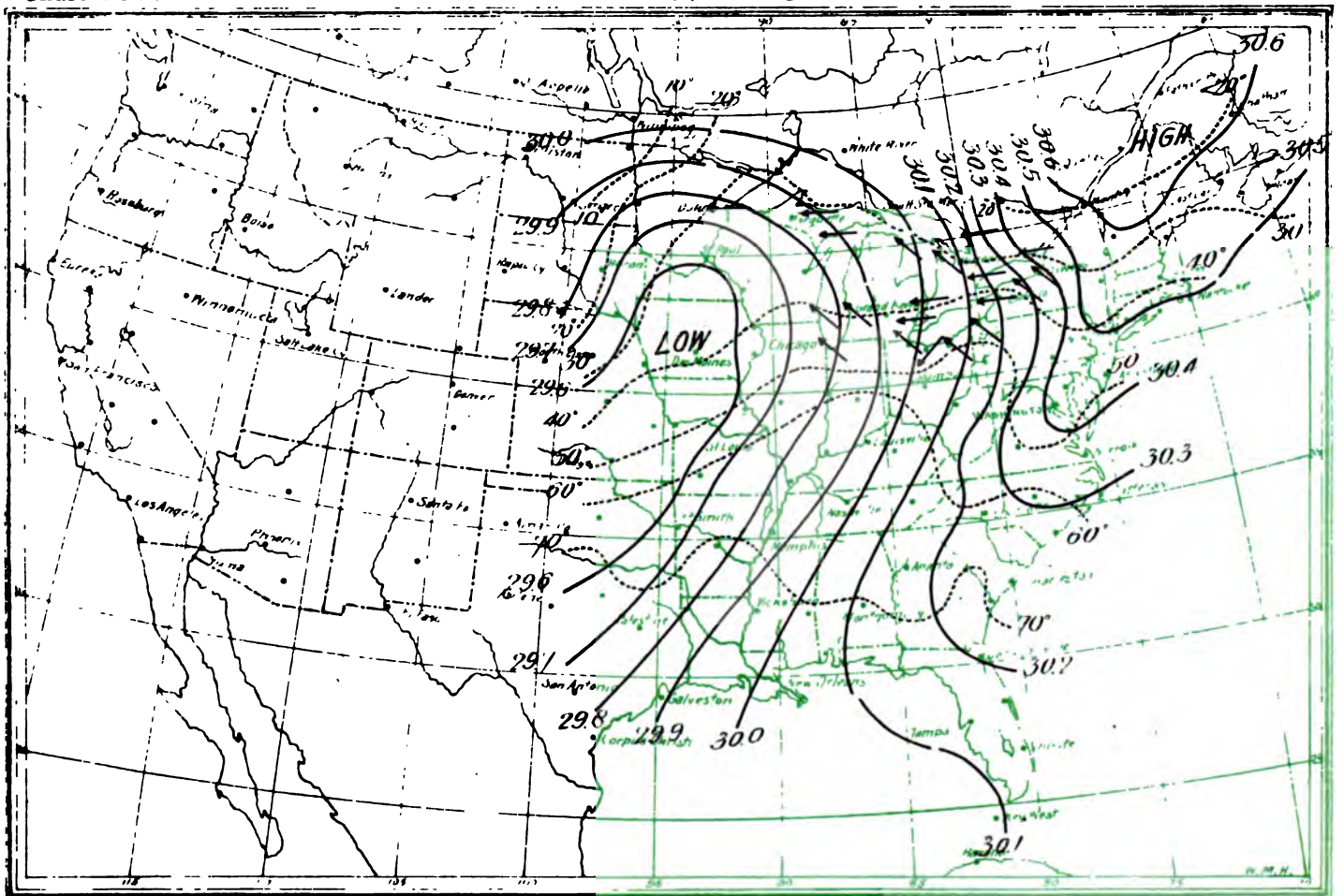


Chart D00011

December 10, 1879—7 a. m.

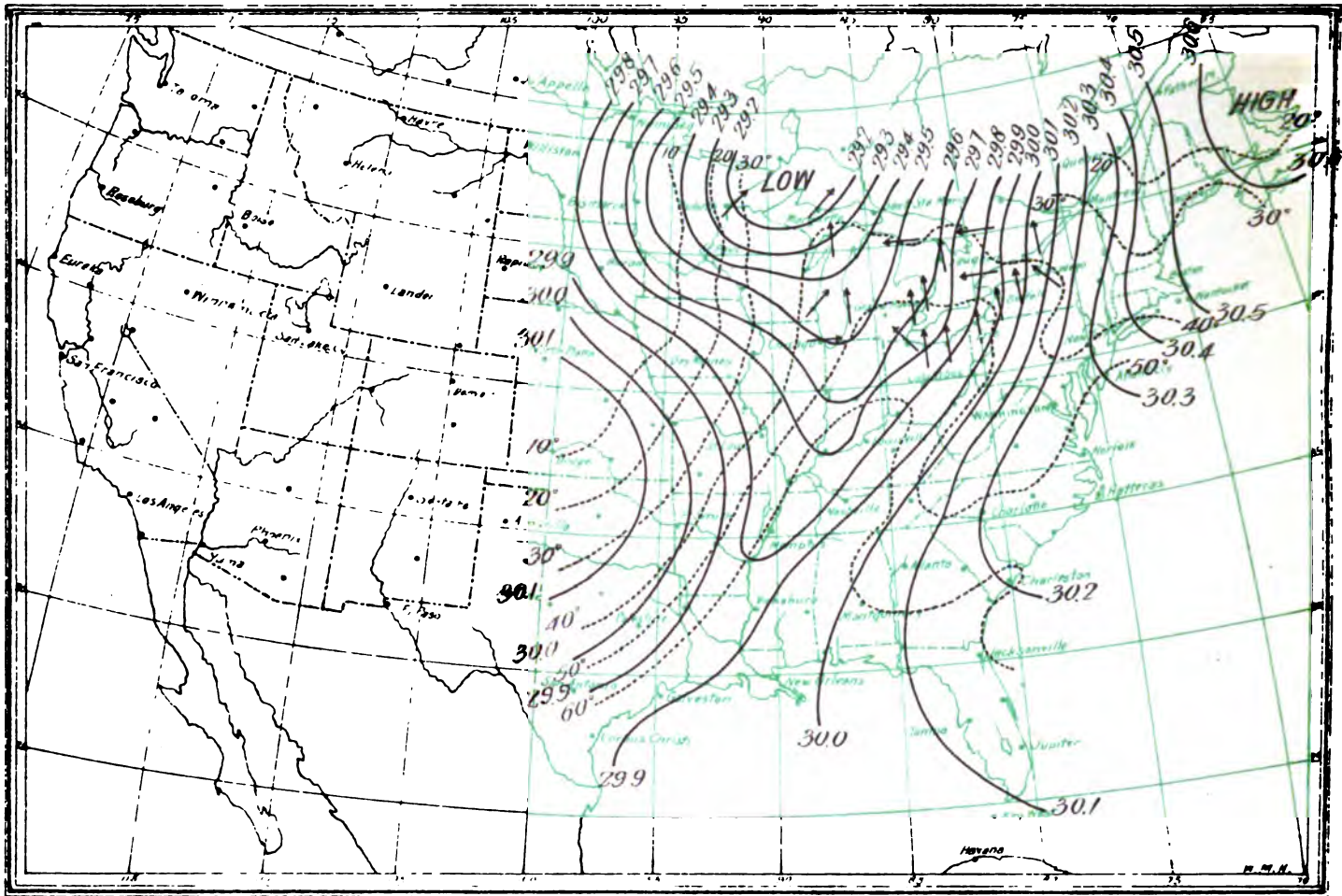


Chart D00012

December 10, 1879—3 p. m.

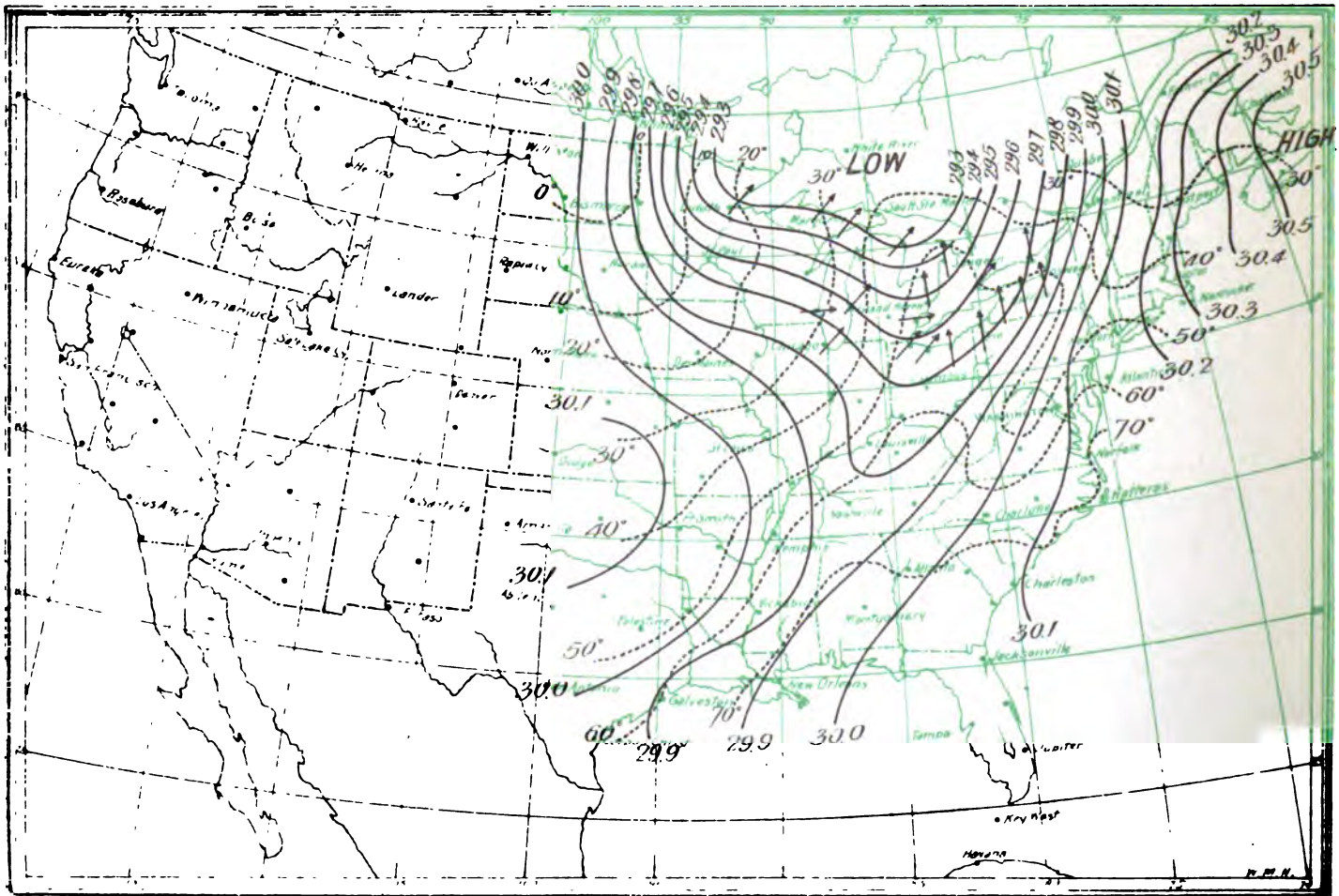


Chart D000LIII.

December 21, 1879—7 a. m.

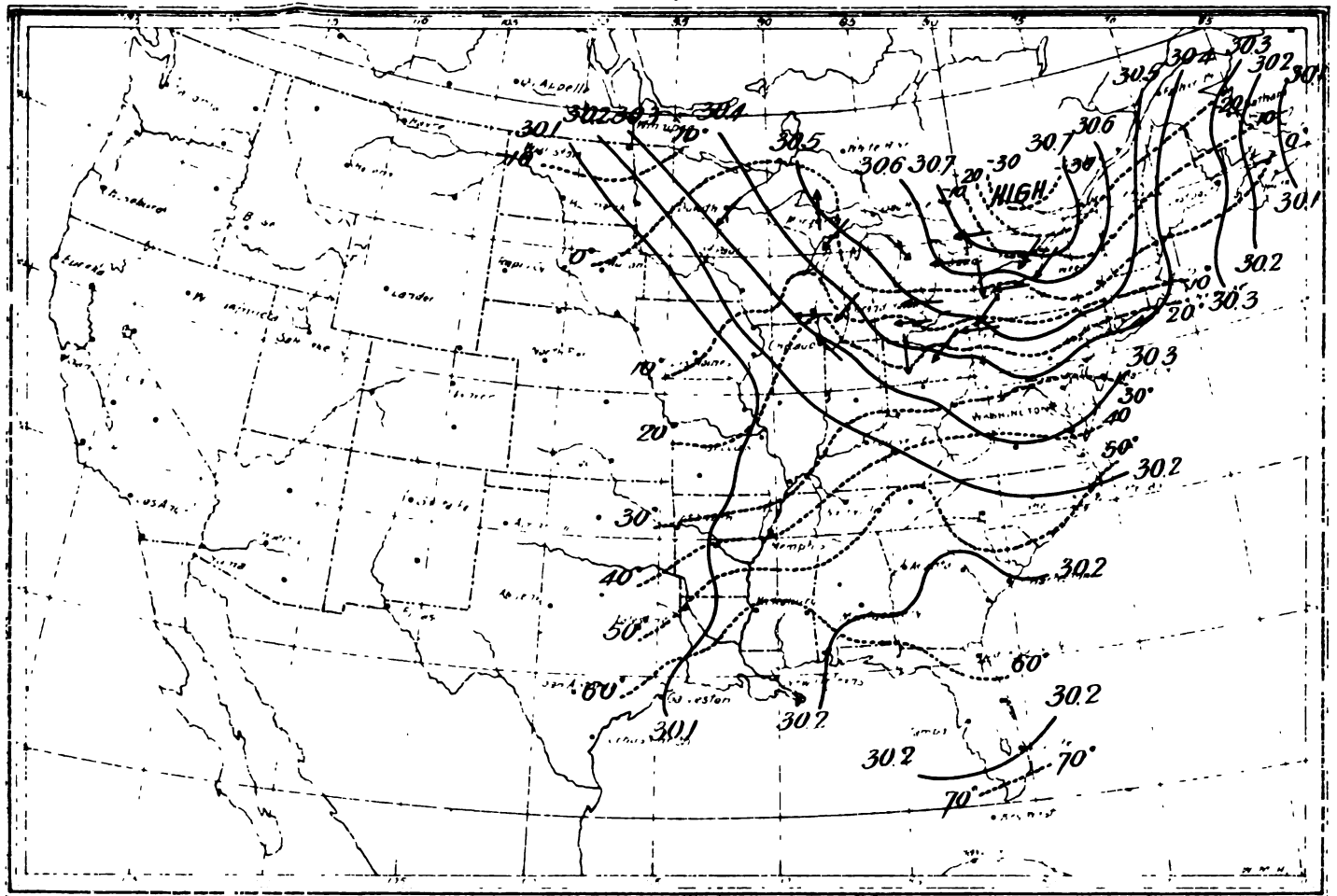


Chart D000LIV.

December 21, 1879—3 p. m.

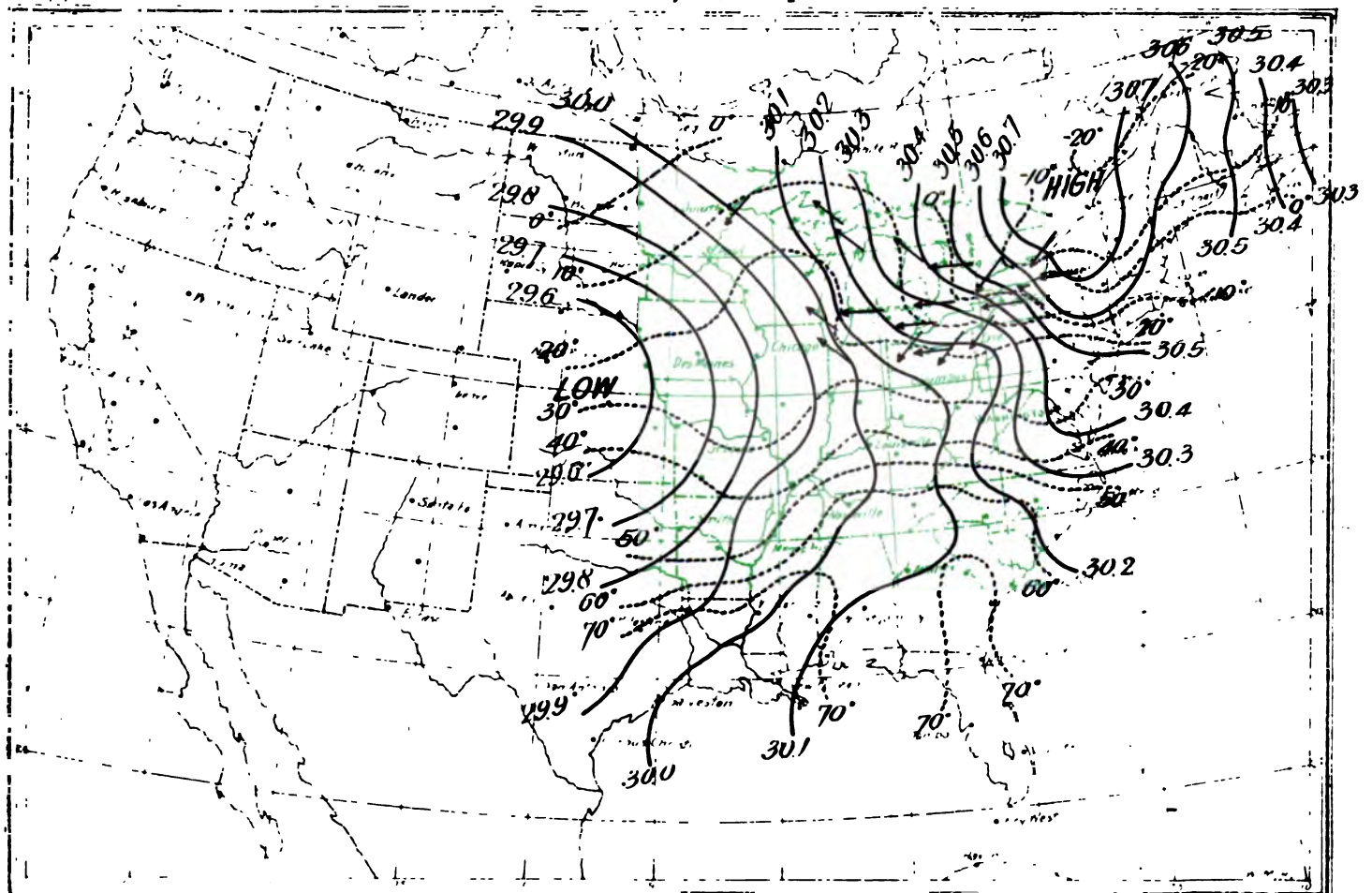


Chart D000LV.

December 22, 1879—7 a. m.

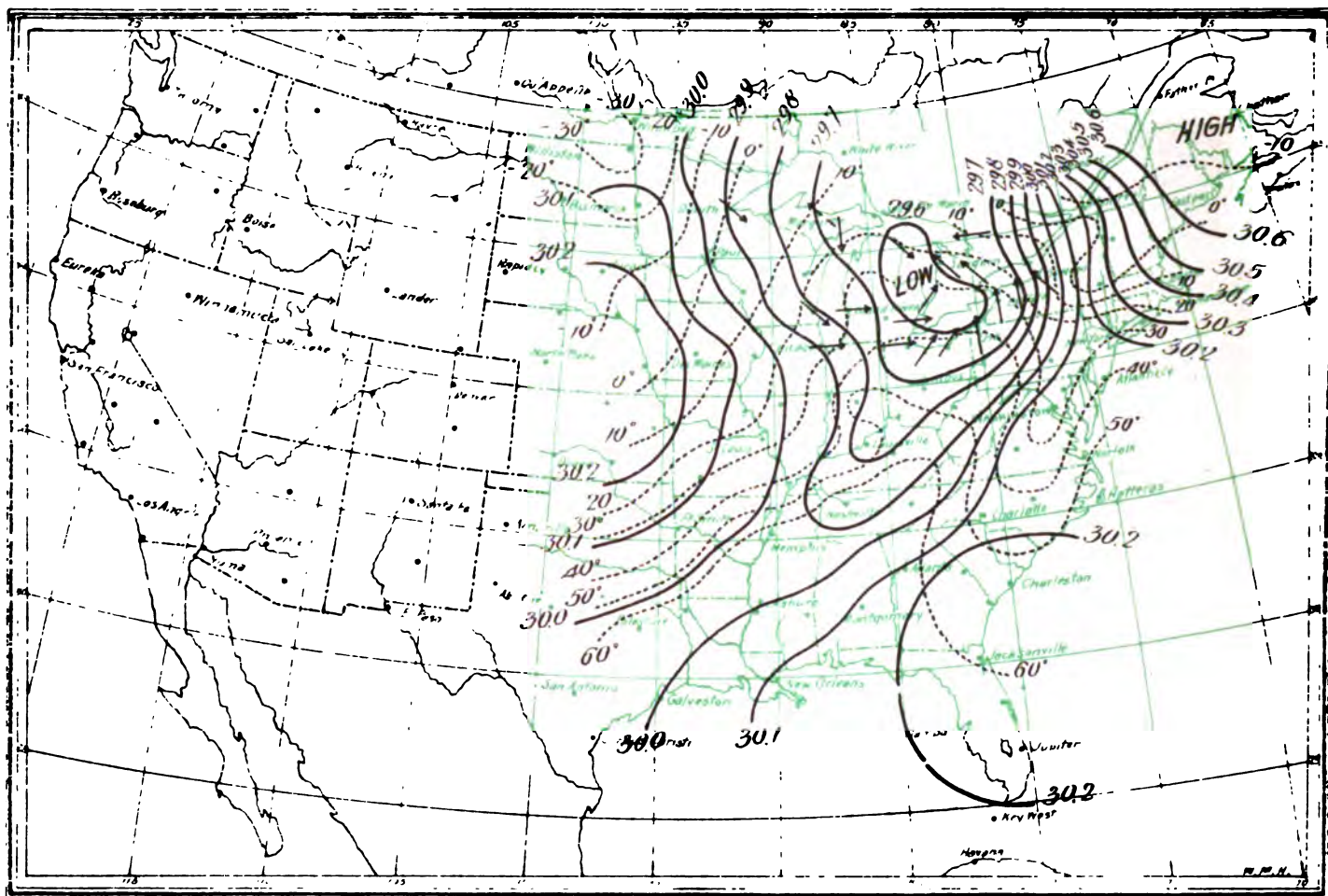


Chart D000LVI.

December 22, 1879—3 p. m.

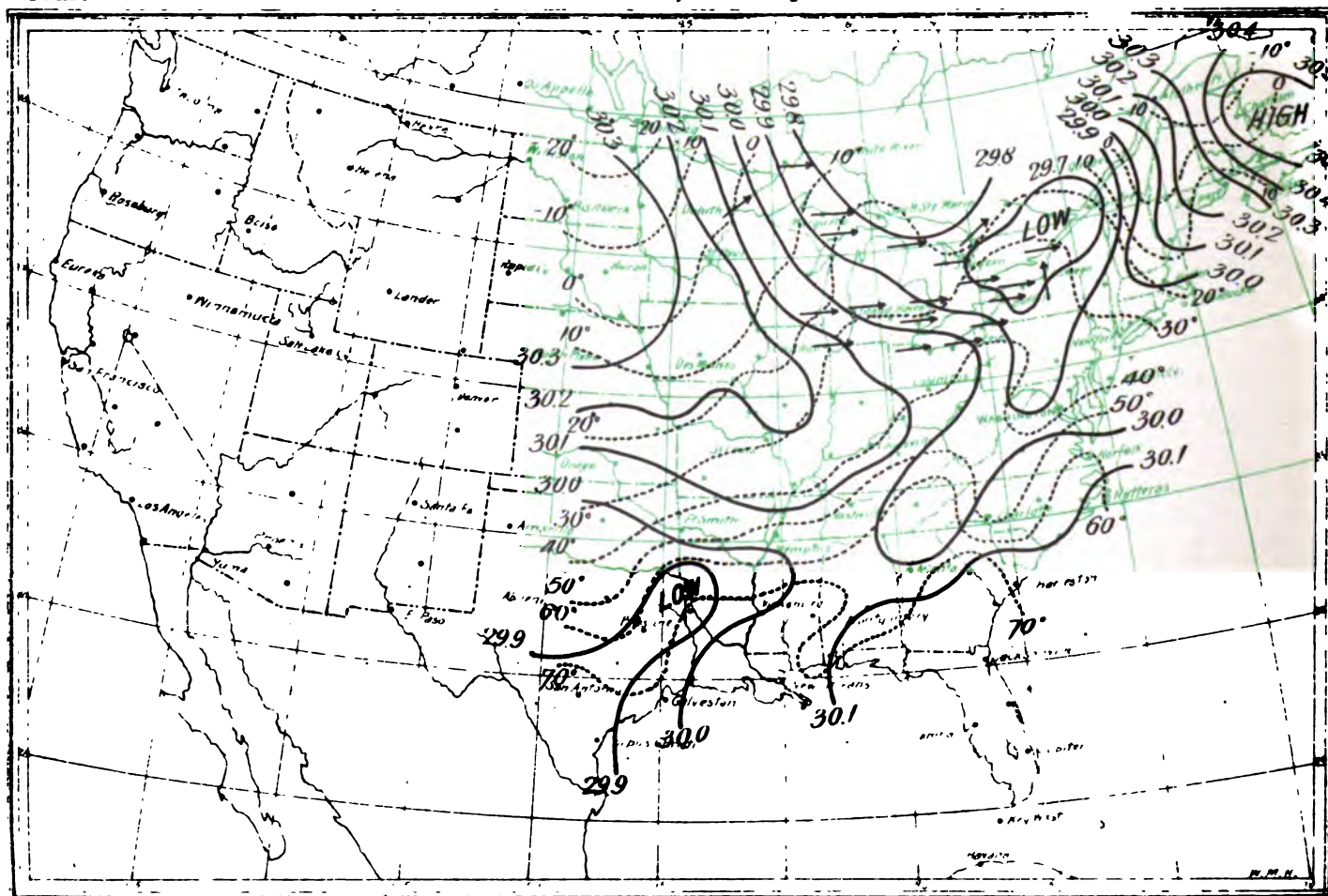


Chart DOOCLVII.

December 4, 1880—7 a. m.

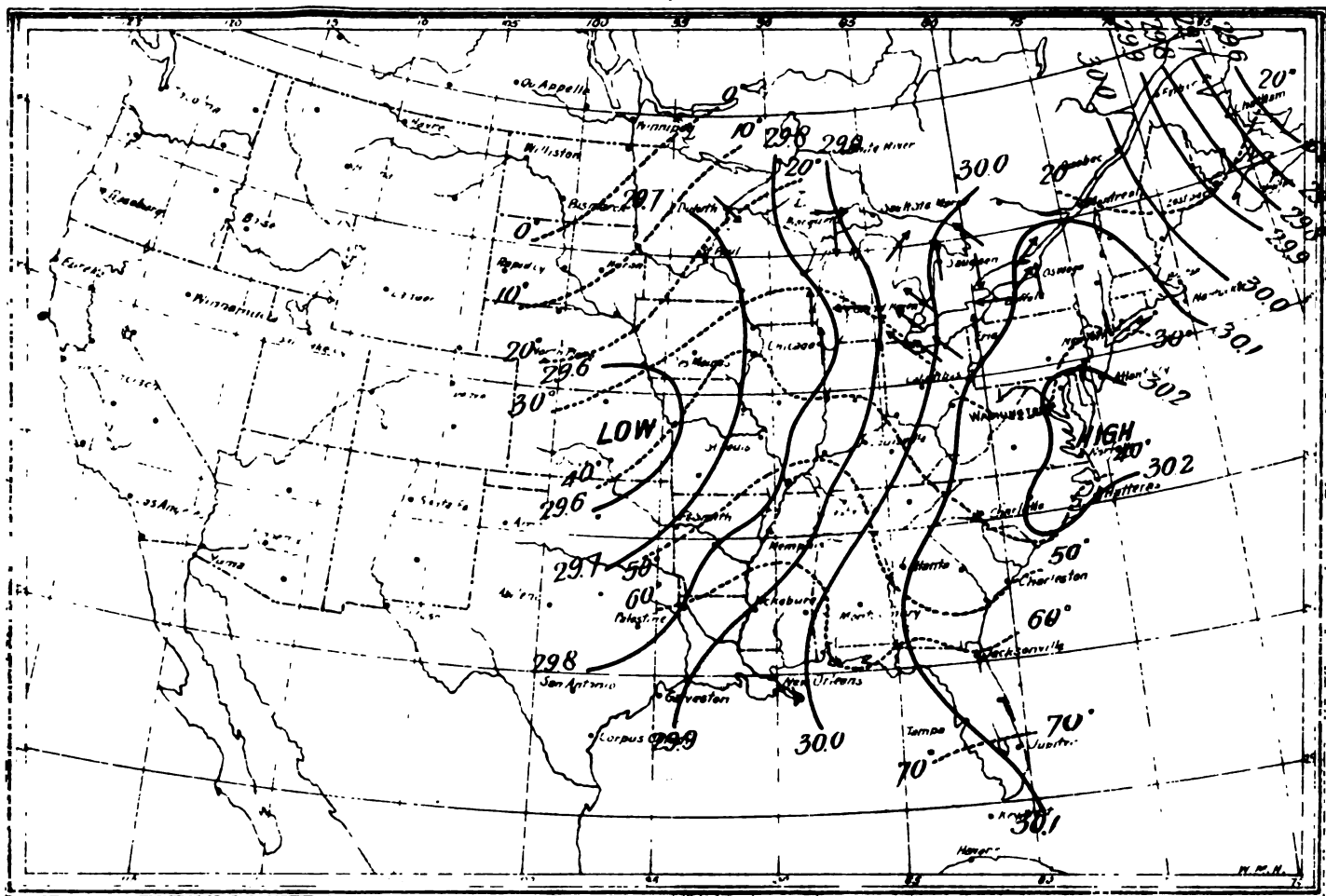


Chart DOOCLVIII.

December 4, 1880—3 p. m.

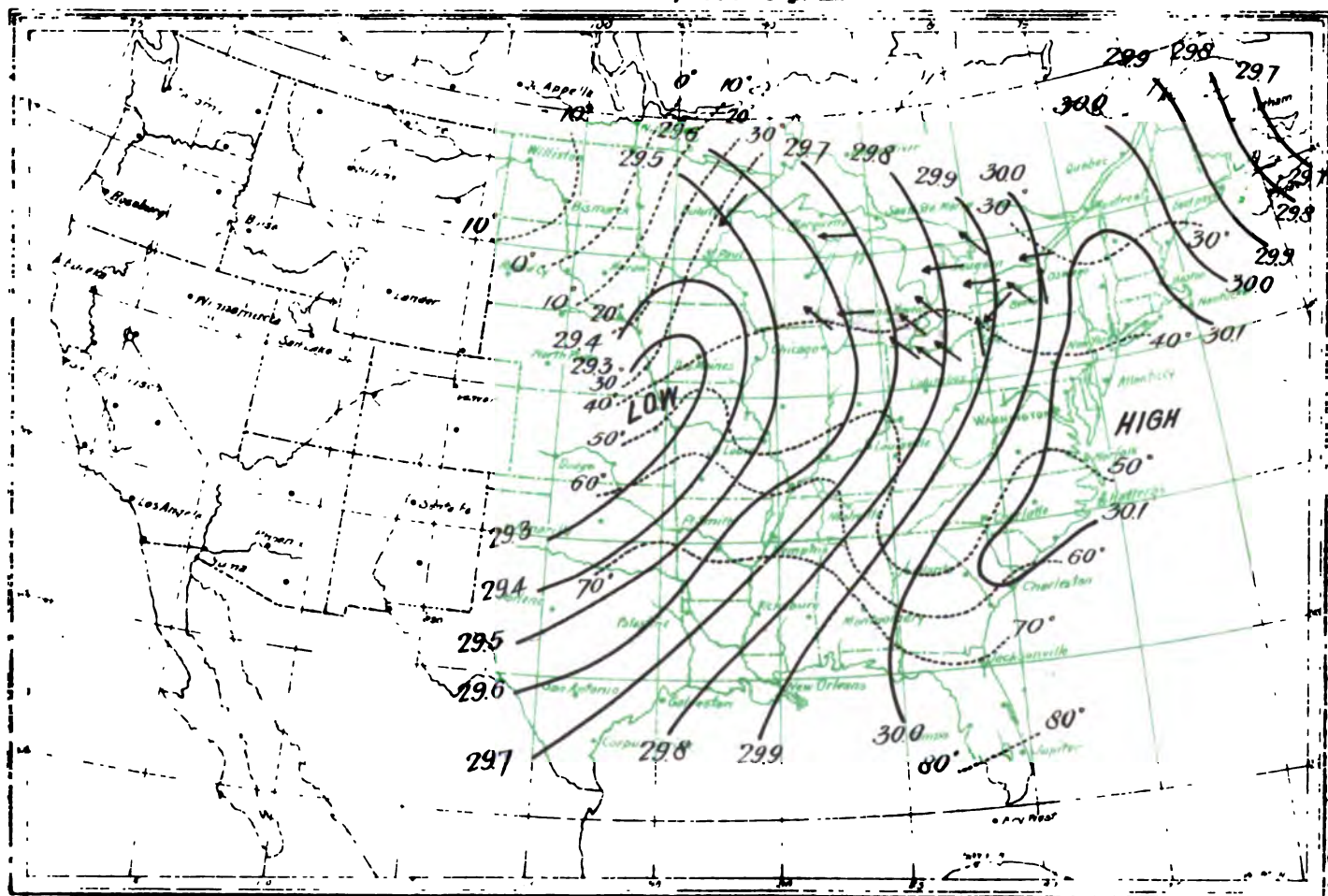


Chart D000LIX.

December 5, 1880—7 a. m.

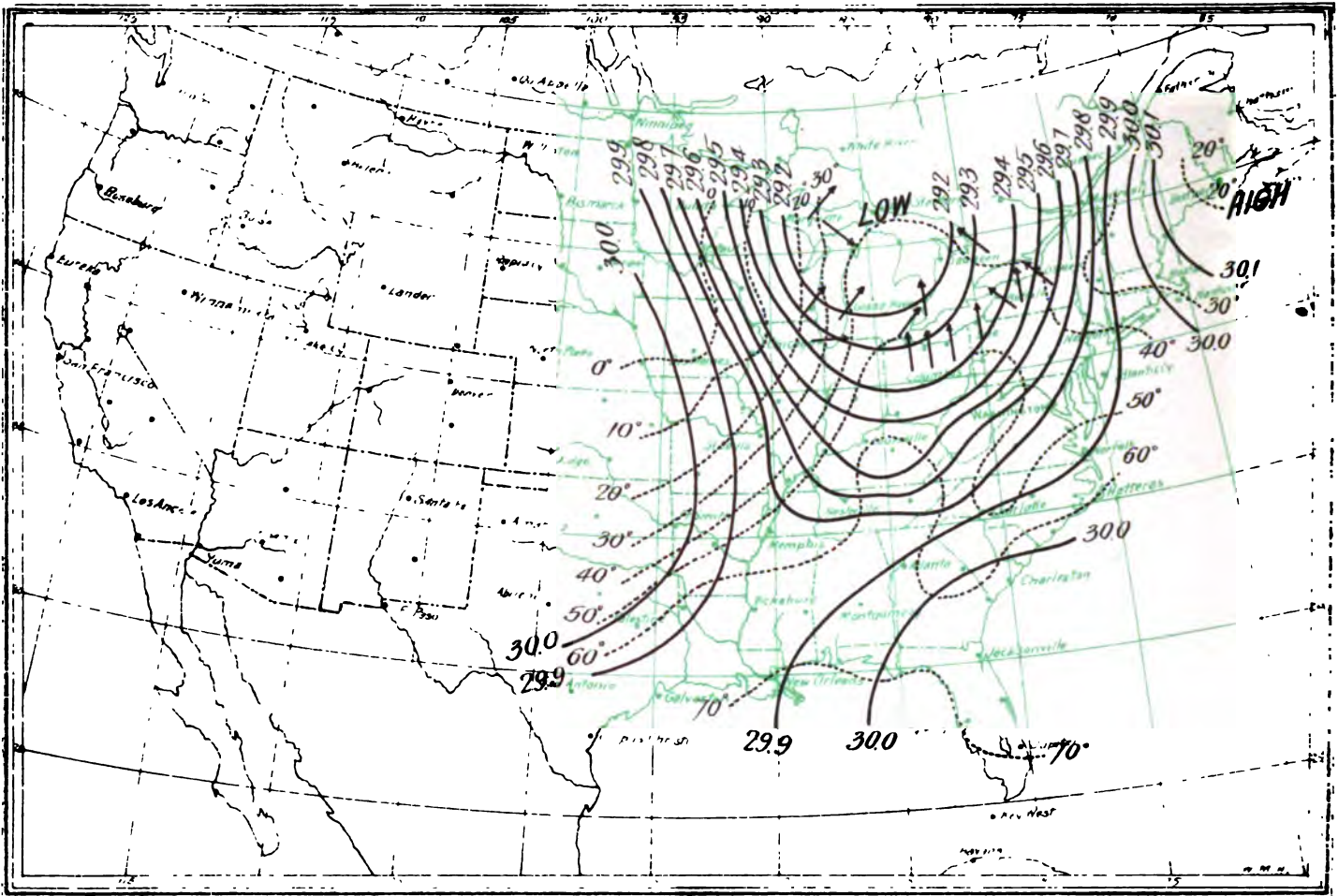


Chart D000LIX.

December 5, 1880—3 p. m.

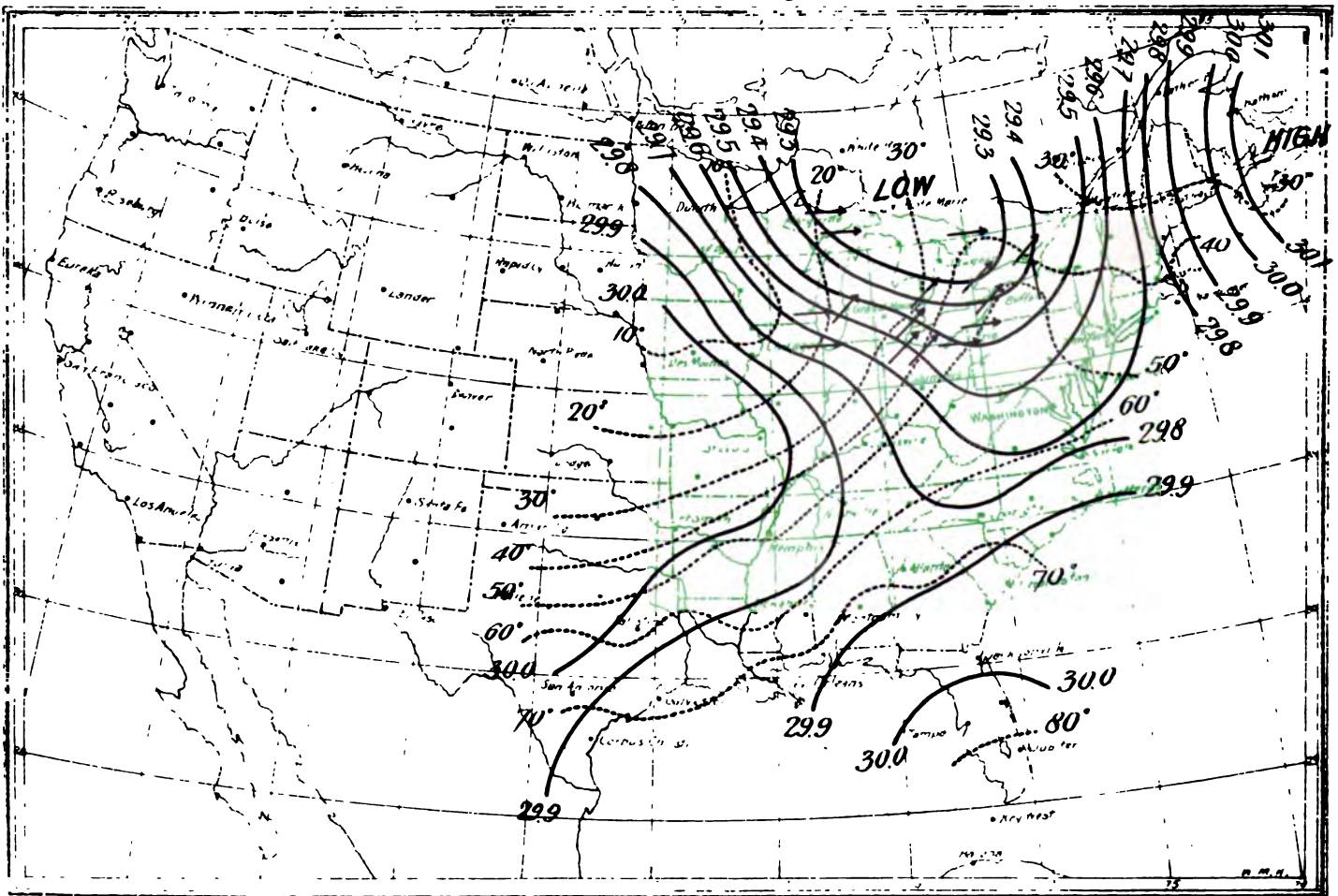


Chart DCCCLXI.

December 23, 1883—7 a. m.

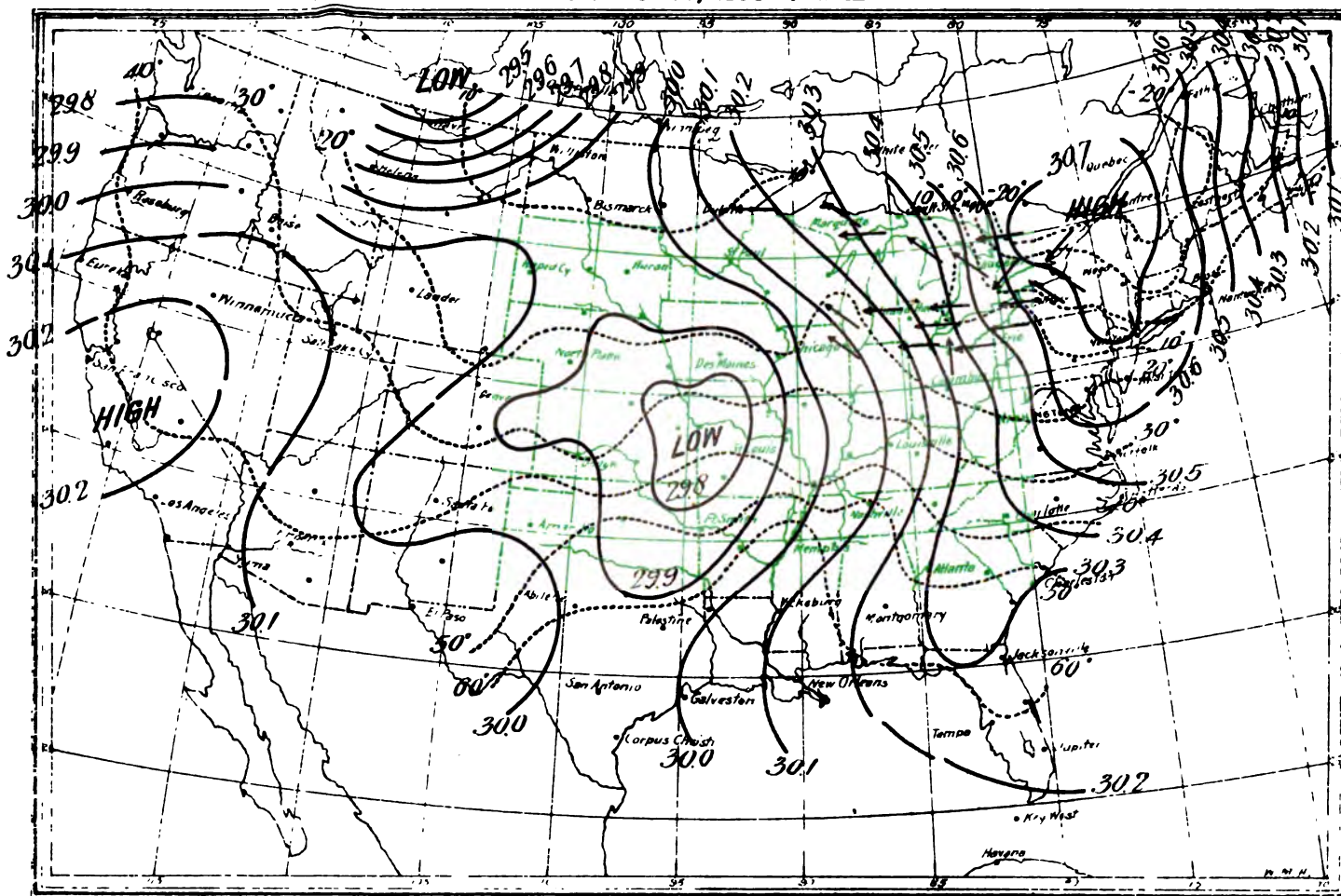


Chart DCCCLXII.

December 23, 1883—3 p. m.

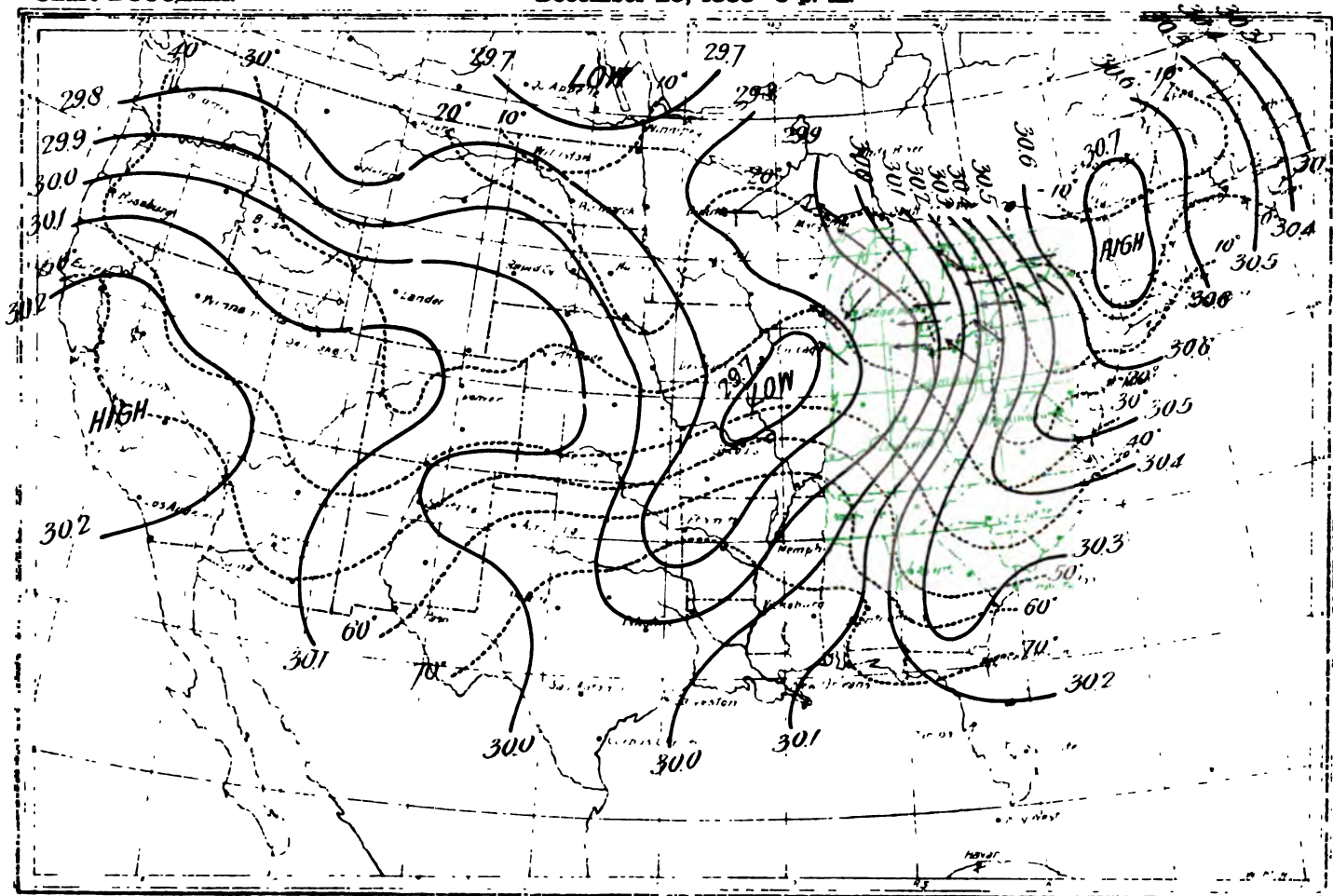


Chart DCOOLXIII.

December 24, 1888—7 a. m.

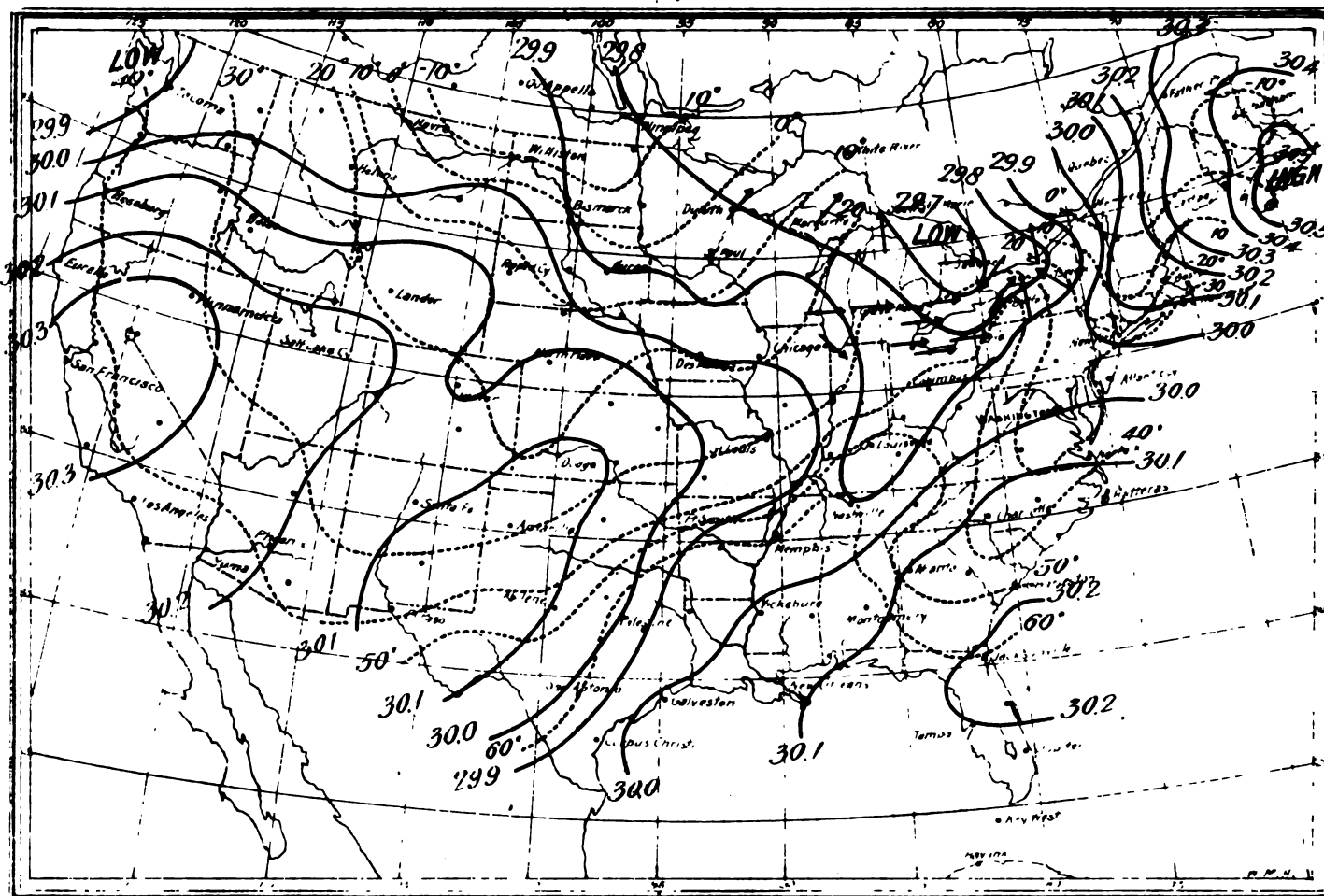


Chart DCOOLXIV.

December 24, 1888—3 p. m.

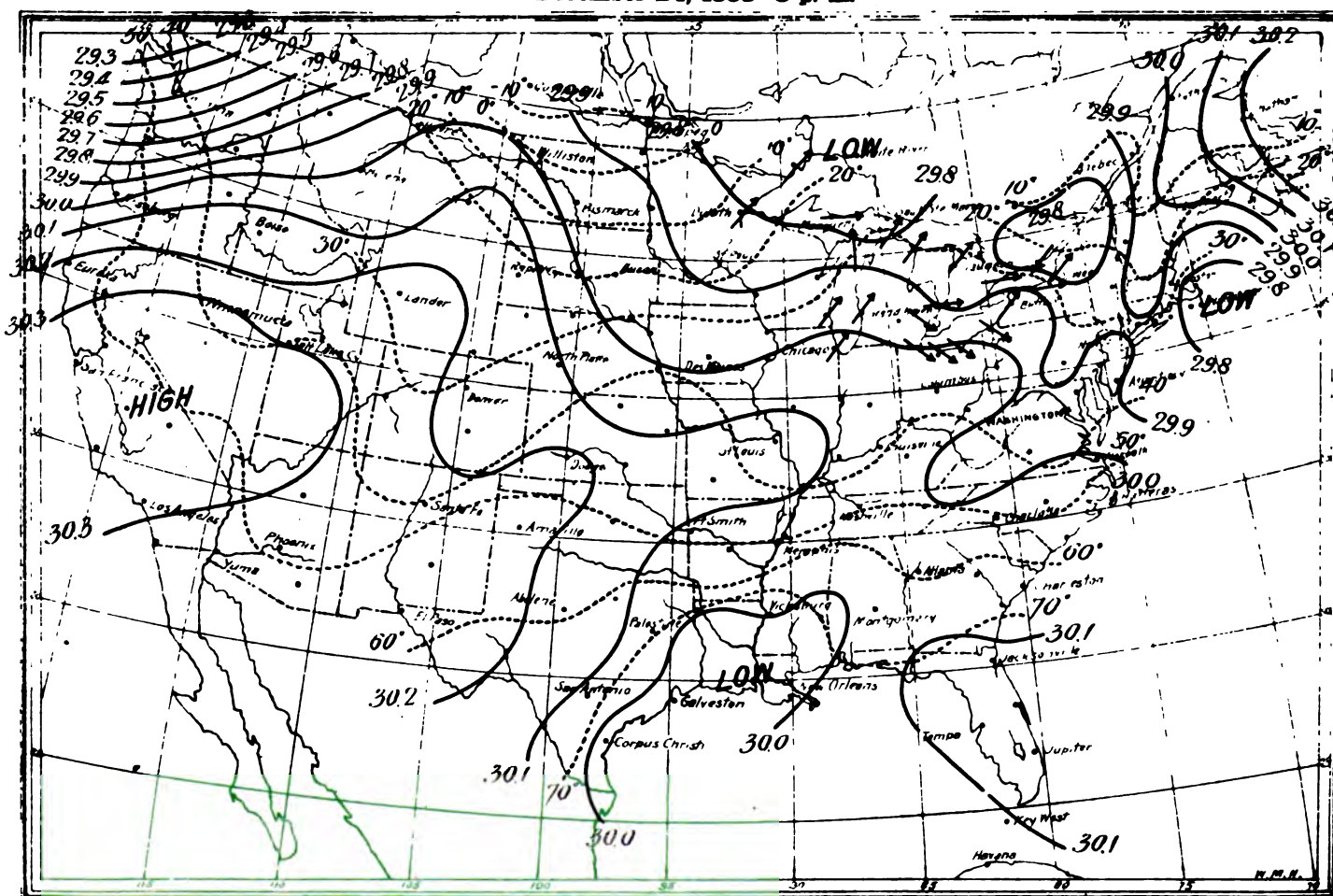


Chart DOOOLXV.

December 26, 1888—7 a. m.

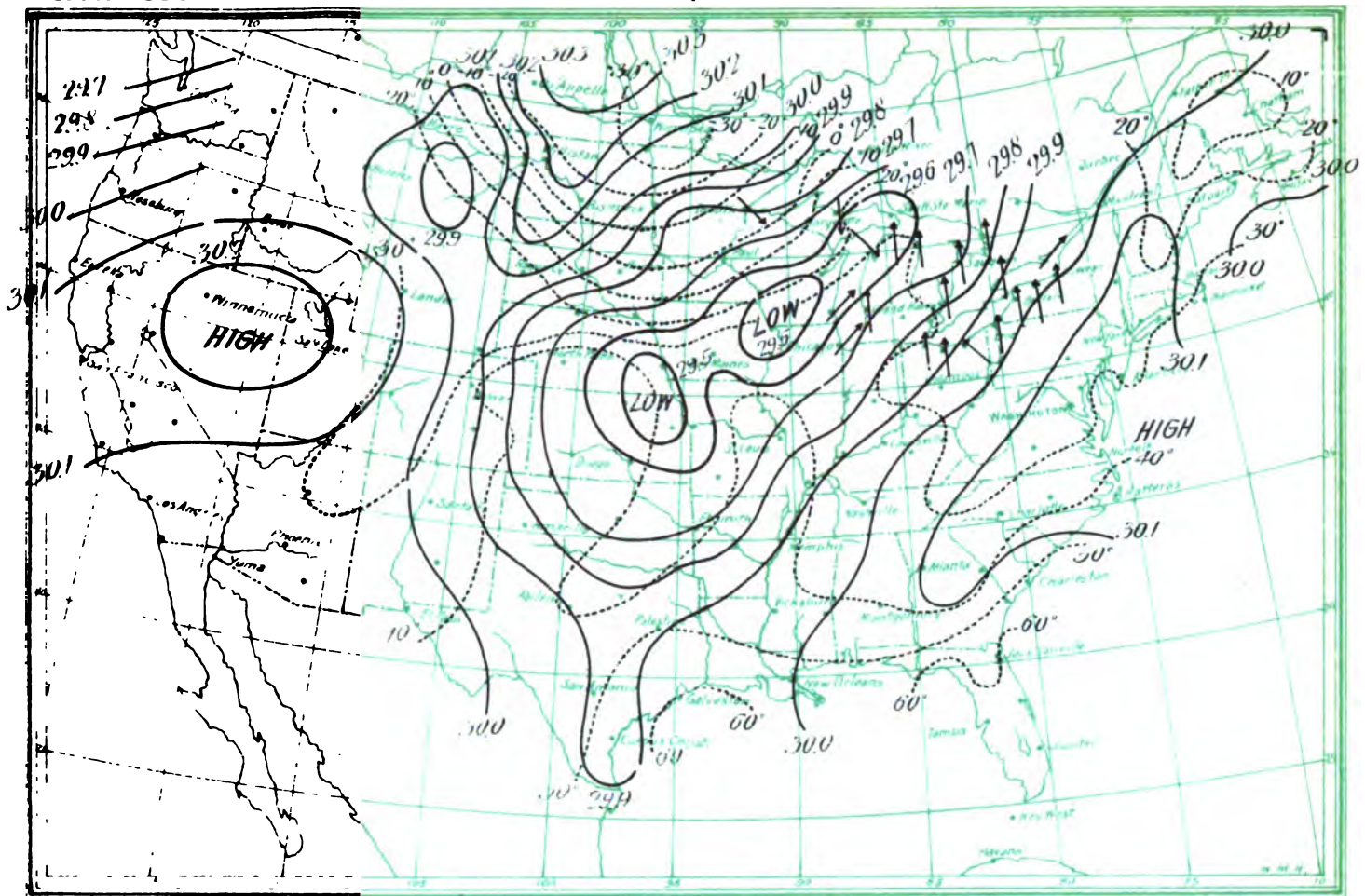


Chart DOOOLXVI.

December 26, 1888—3 p. m.

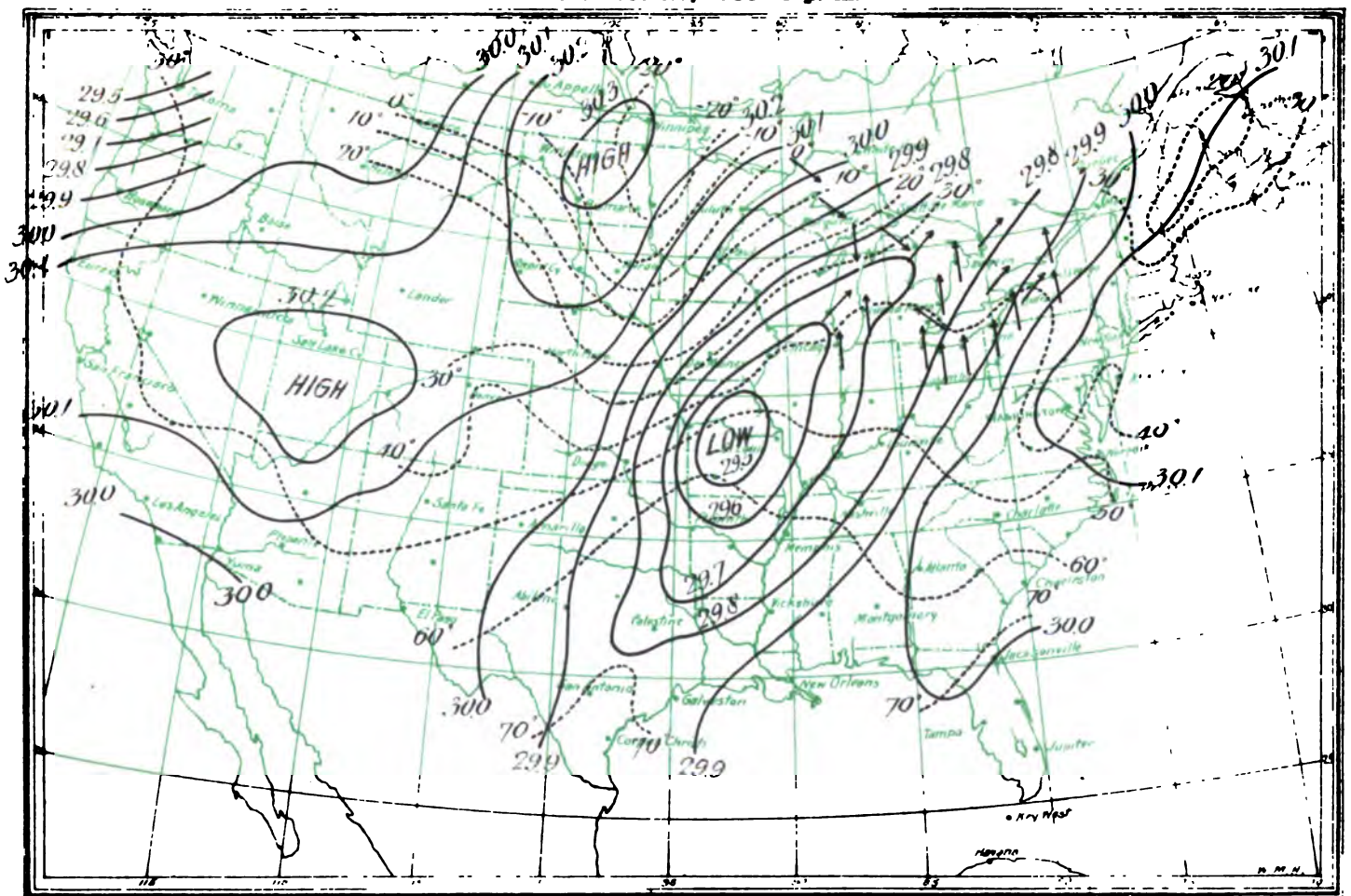


Chart DOOCLXVII.

December 27, 1883—7 a. m.

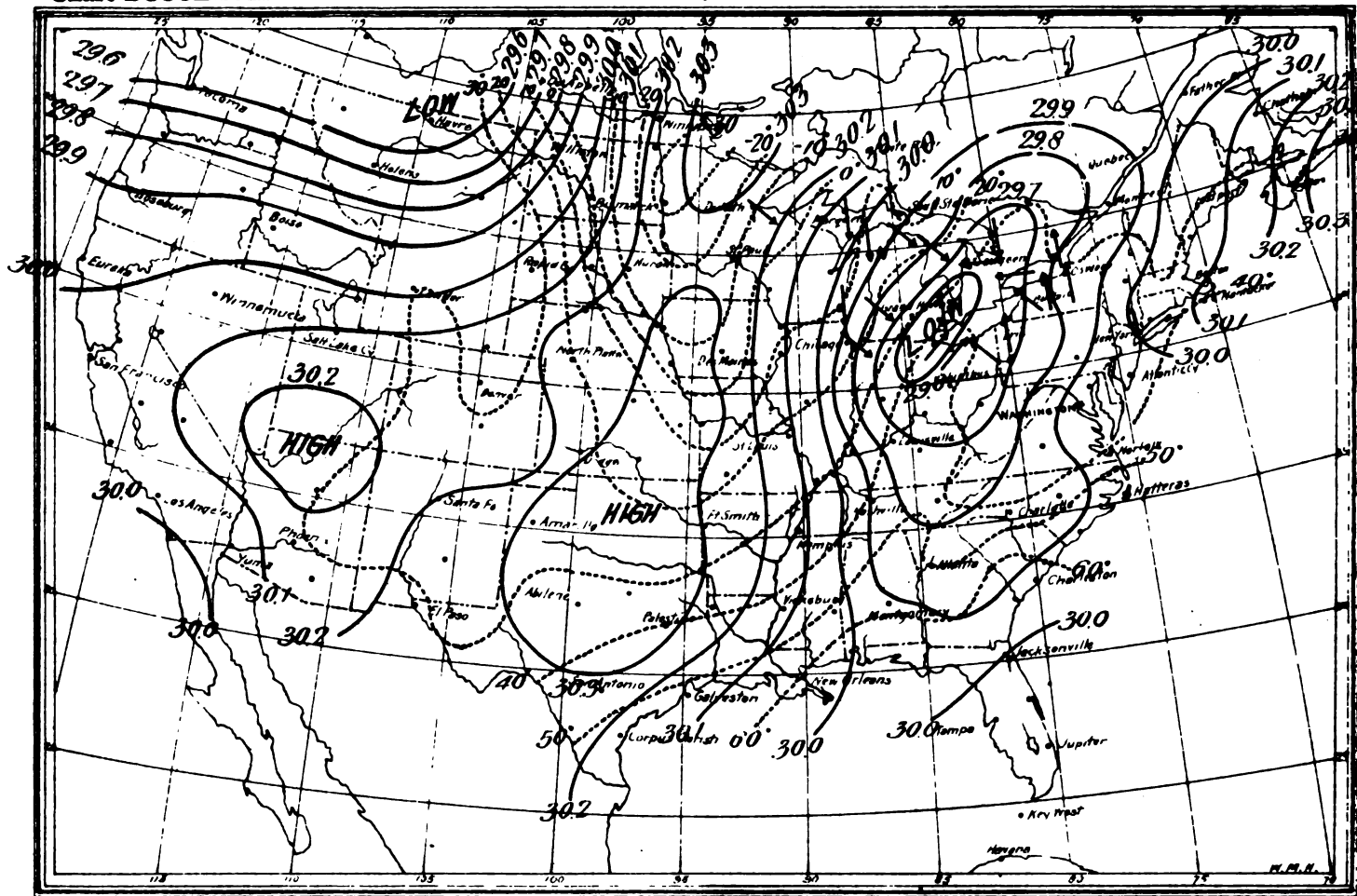


Chart DOOCLXVIII.

December 27, 1883—3 p. m.

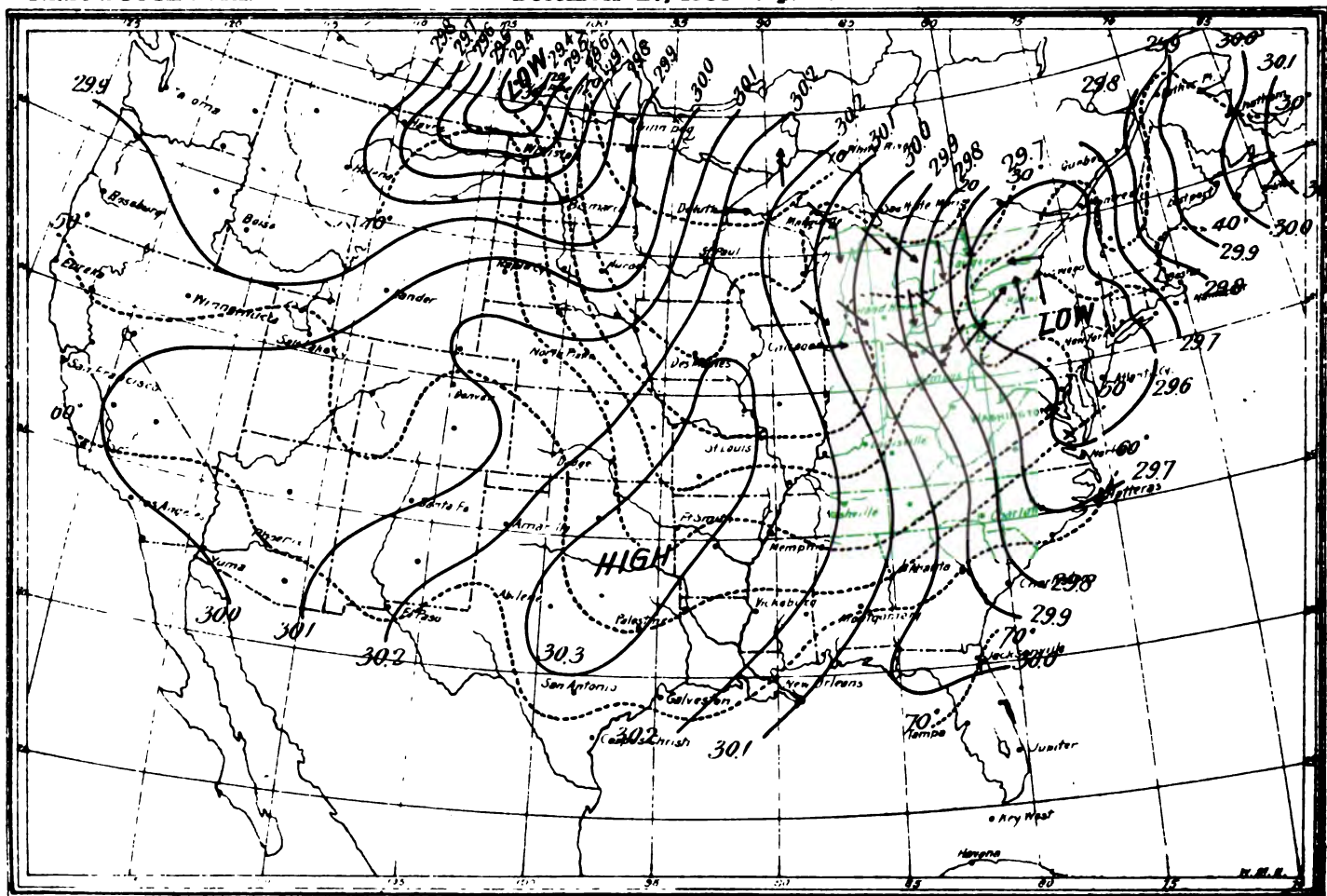


Chart DOOCLXIX.

December 5, 1884—7 a. m.

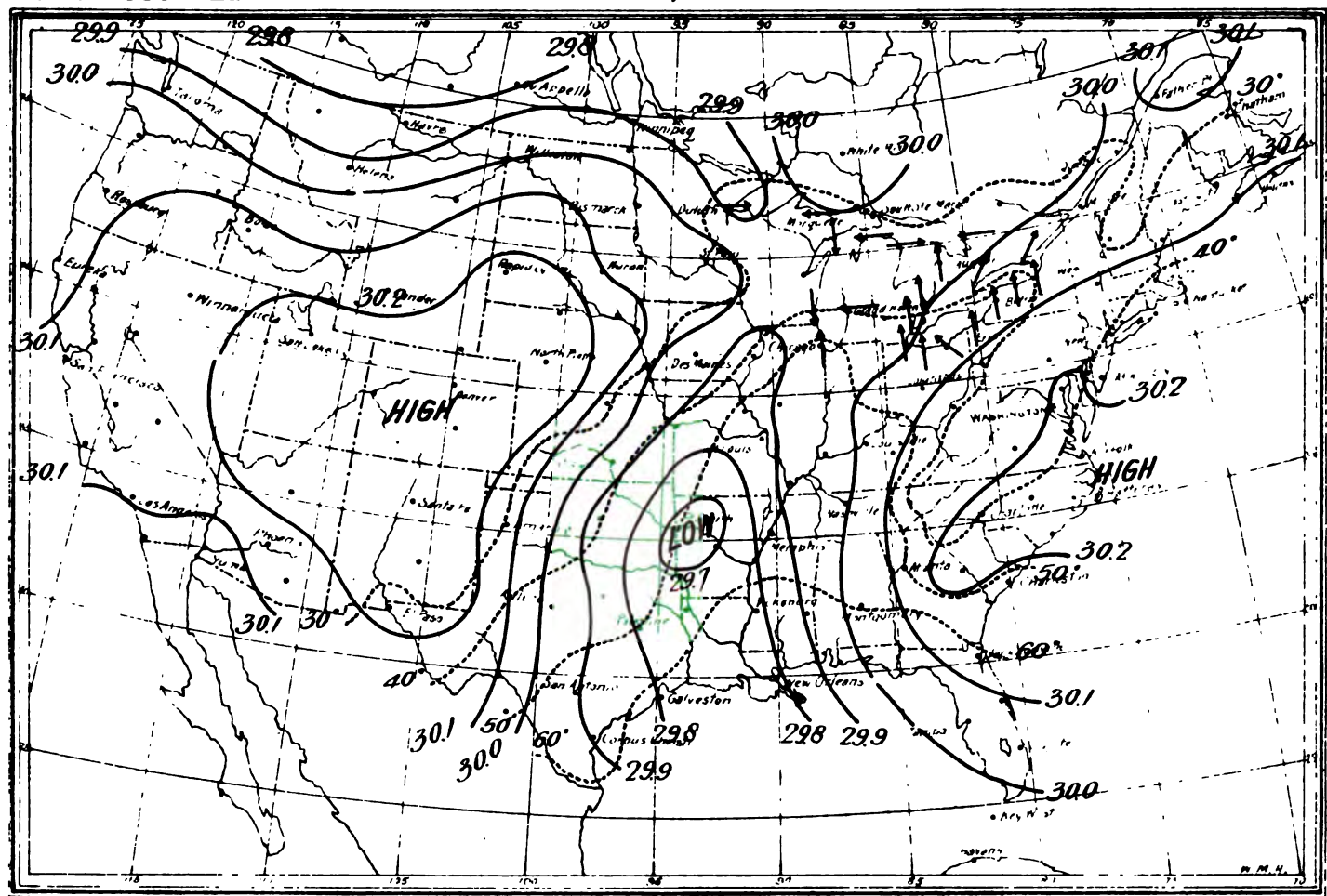


Chart DOOCLXX.

December 5, 1884—3 p. m.

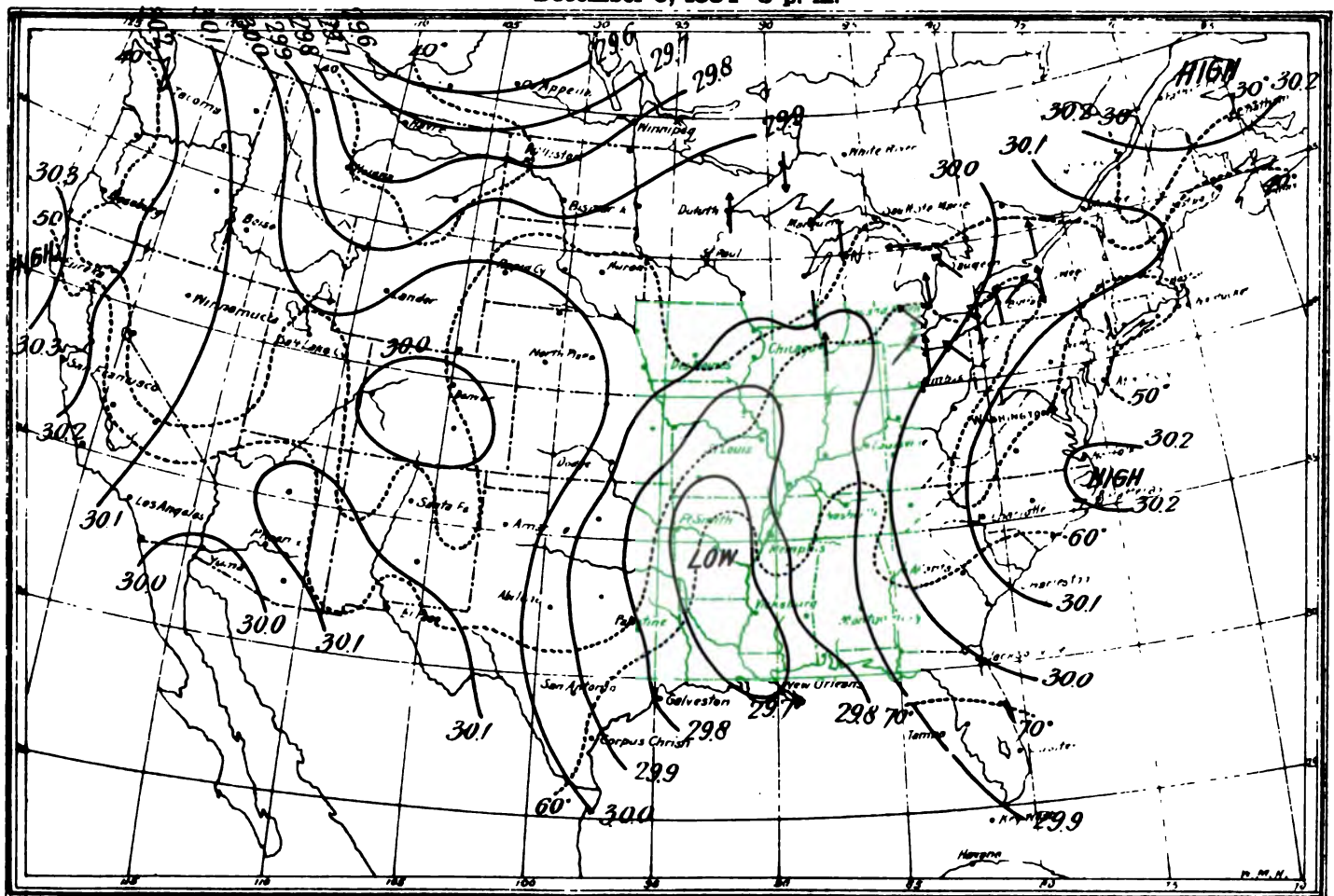


Chart D000LXXI

December 6, 1884—7 a. m.

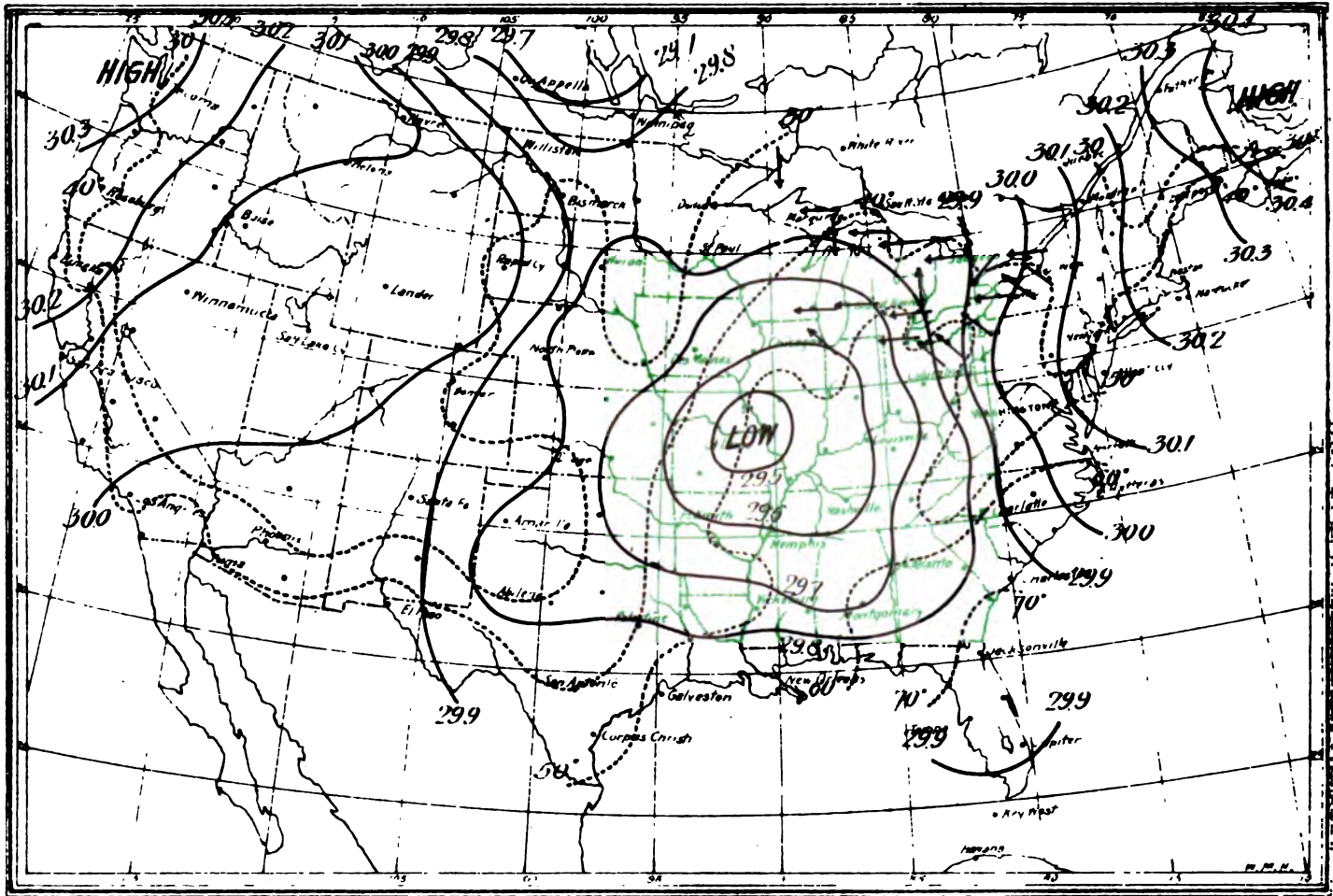


Chart D000LXXII

December 6, 1884—3 p. m.

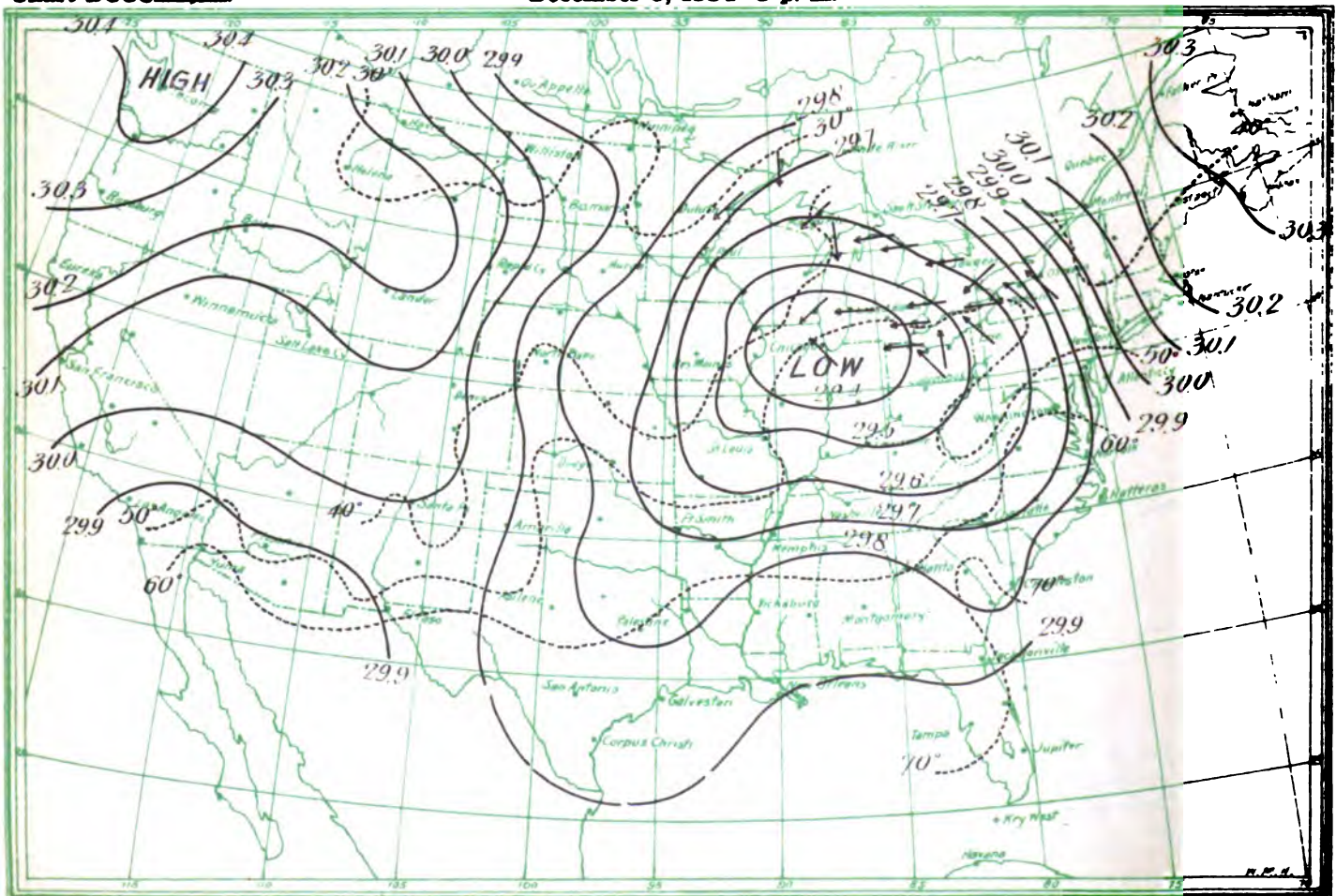


Chart DCCCLXXIII.

December 14, 1884—7 a. m.

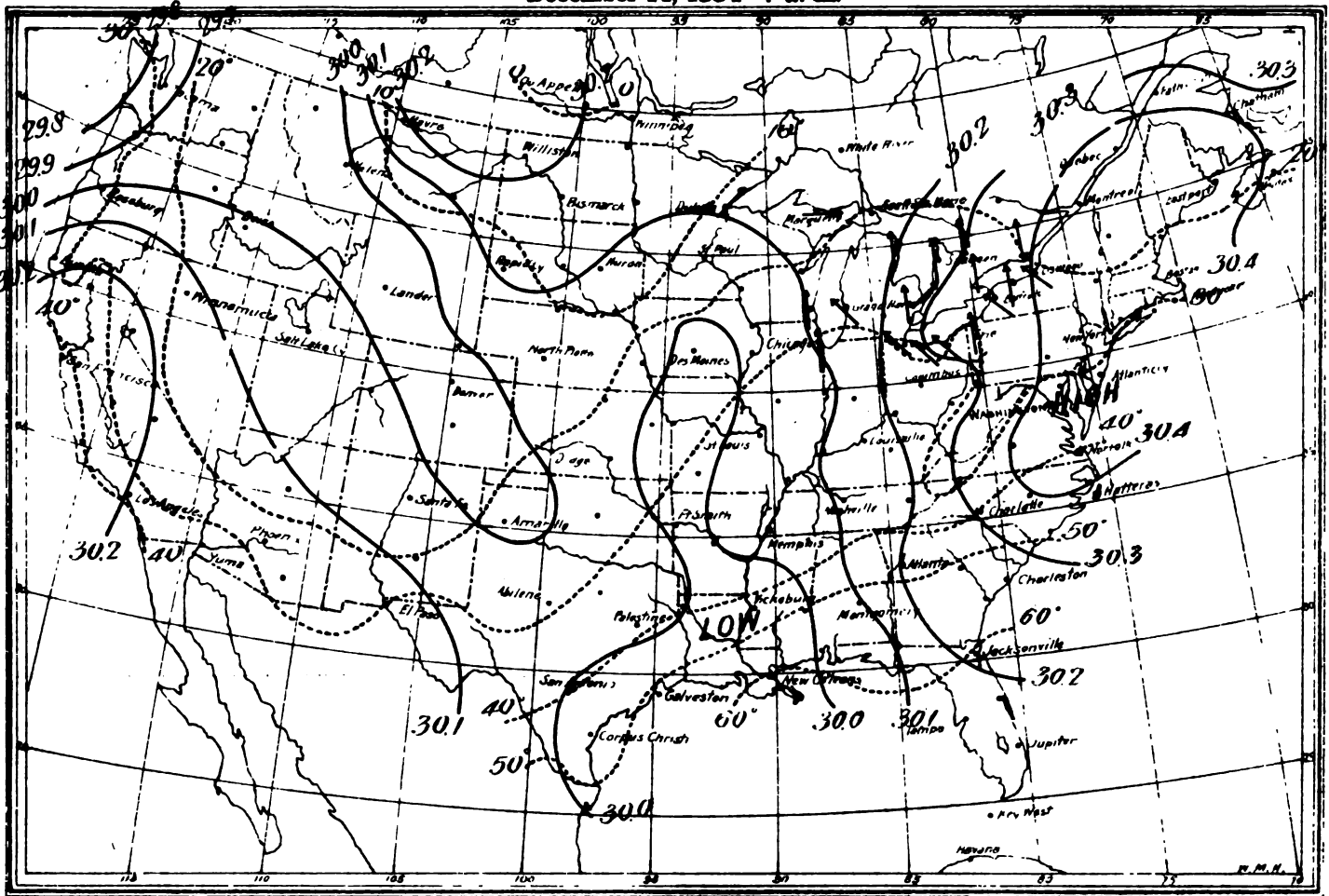


Chart DCCCLXXIV.

December 14, 1884—3 p. m.

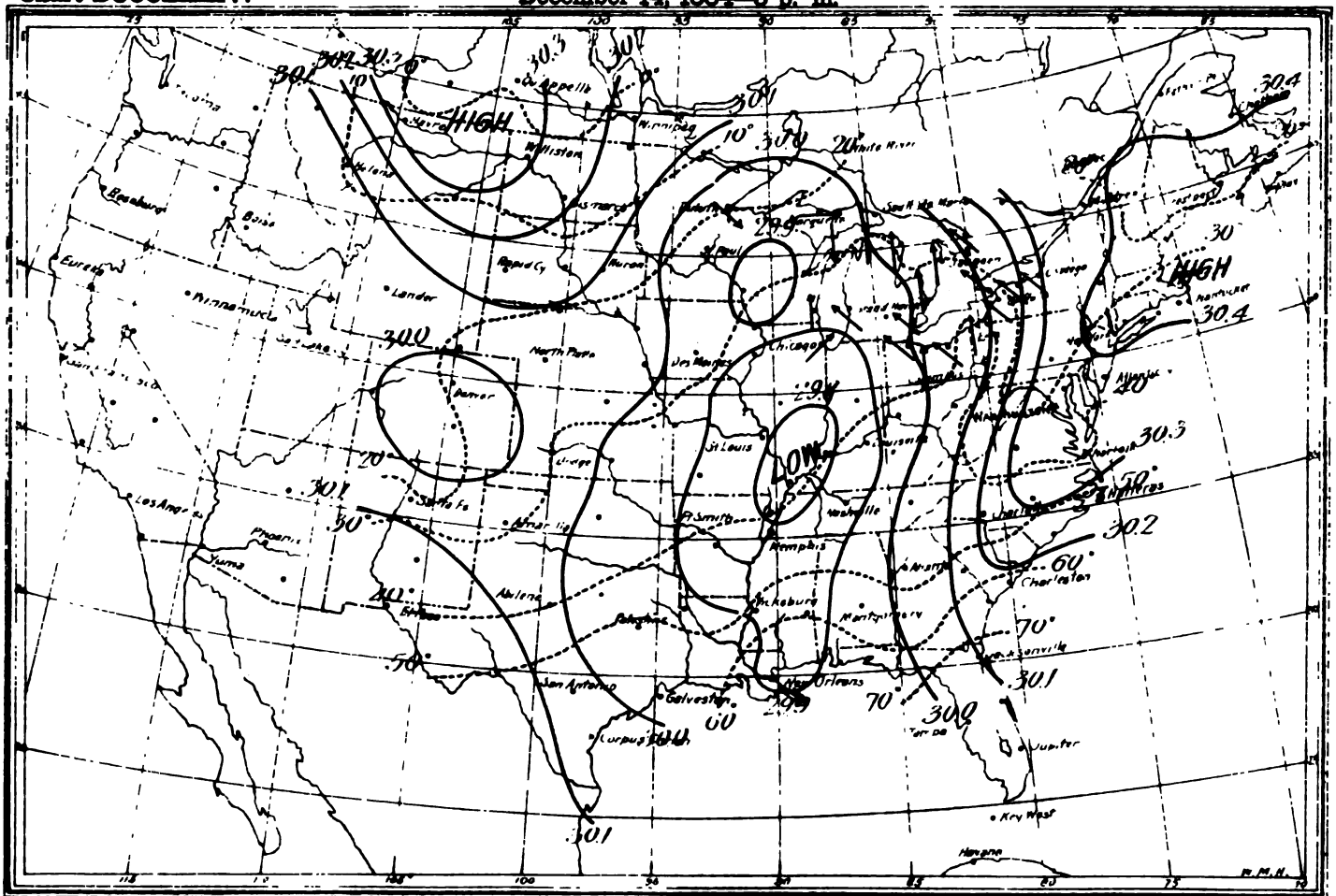


Chart DCOOLXXV.

December 15, 1884—7 a. m.

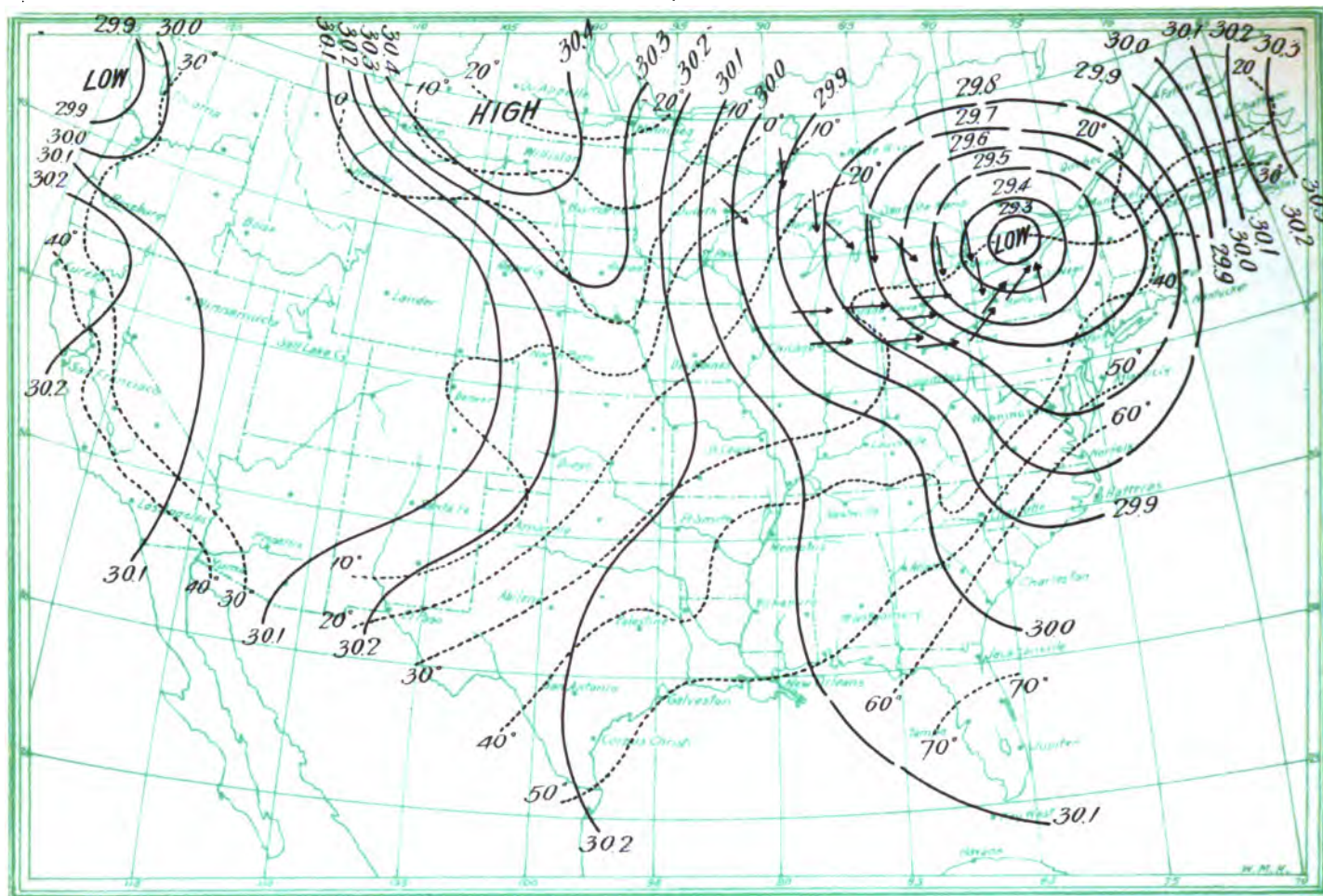


Chart DCOOLXXVI.

December 15, 1884—3 p. m.

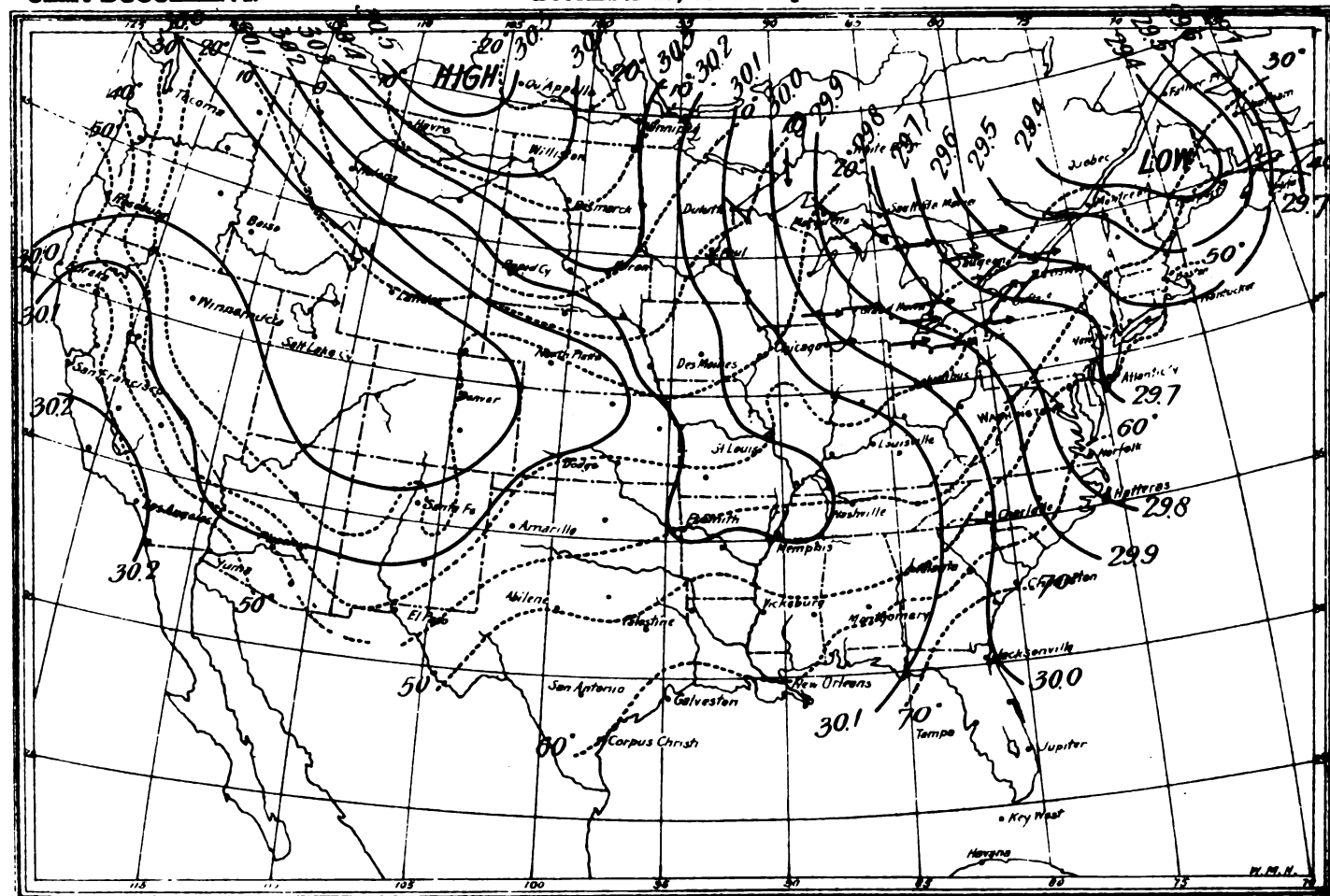


Chart D000LXXVII.

December 21, 1884—7 a. m.

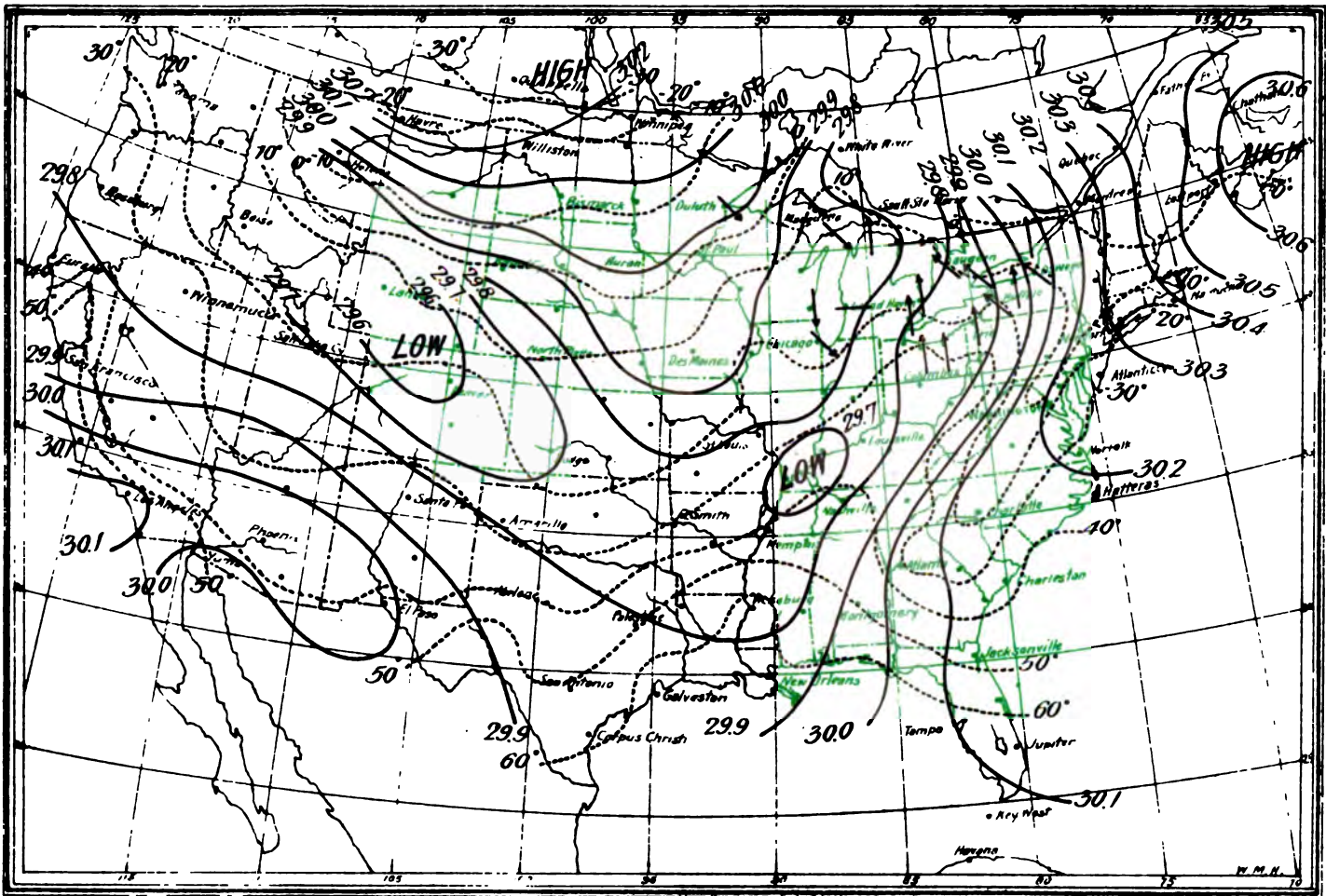


Chart D000LXXVIII.

December 21, 1884—3 p. m.

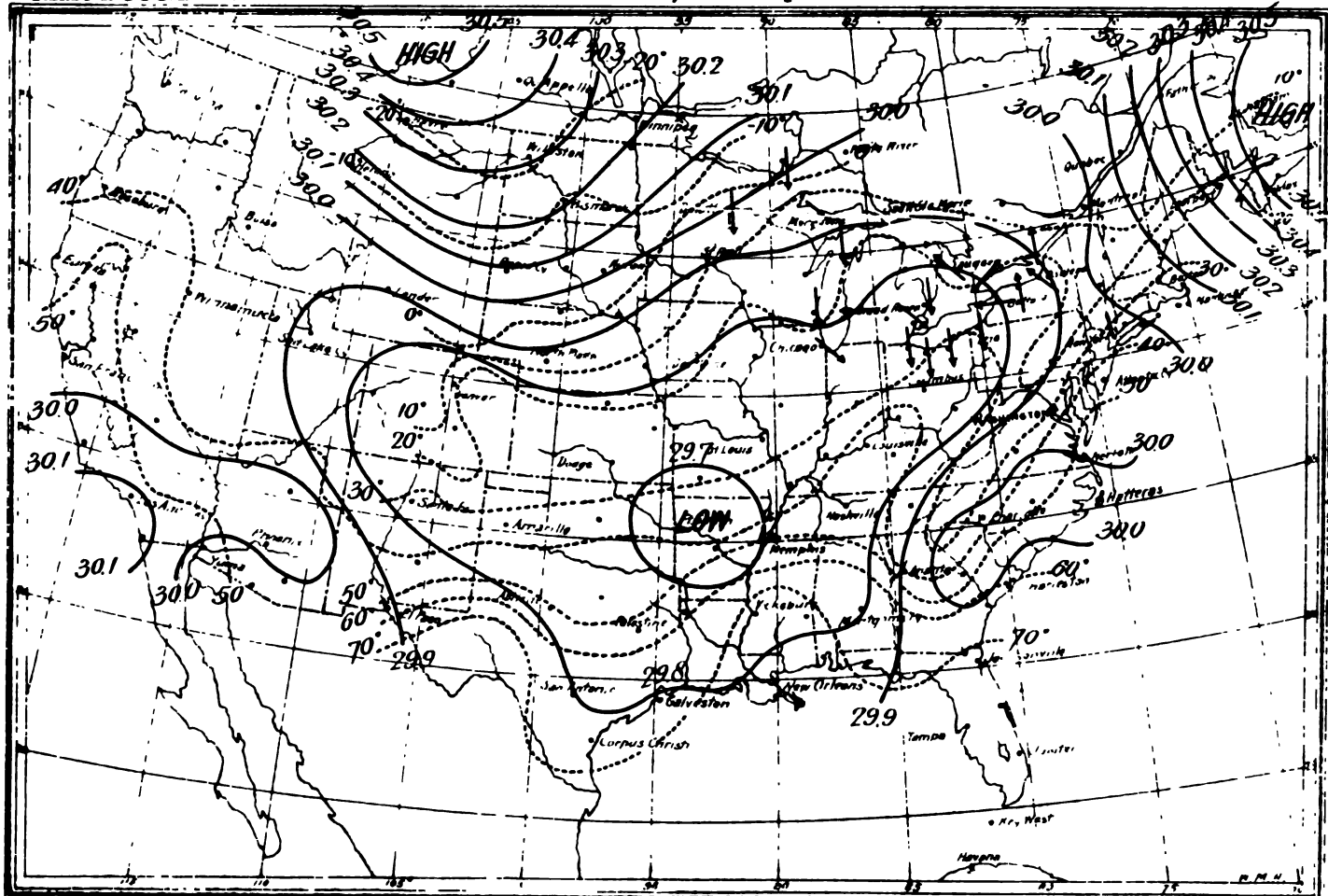


Chart DCCCLXXIX.

December 22, 1884—7 a. m.

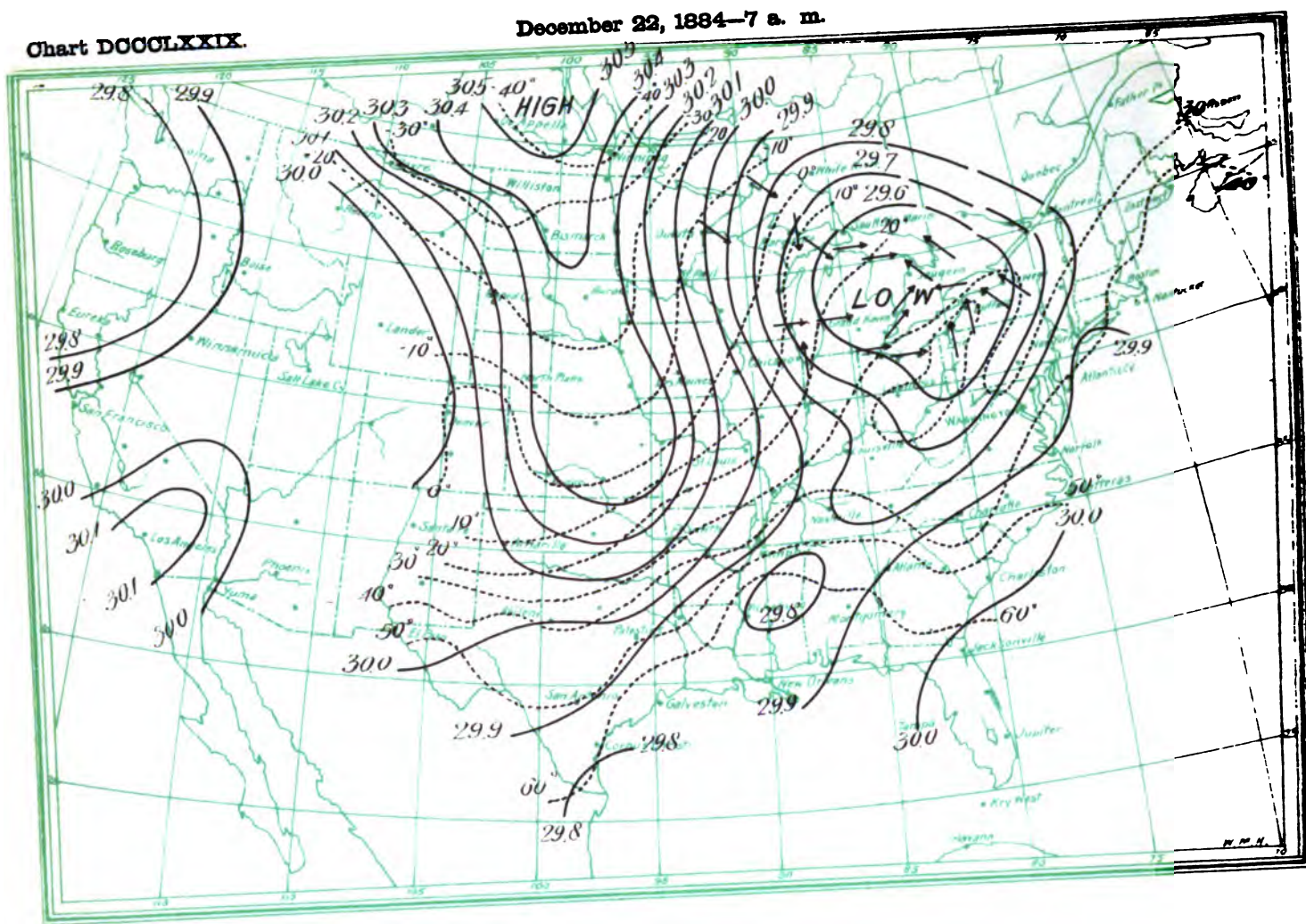


Chart DCCCLXXX.

December 22, 1884—3 p. m.

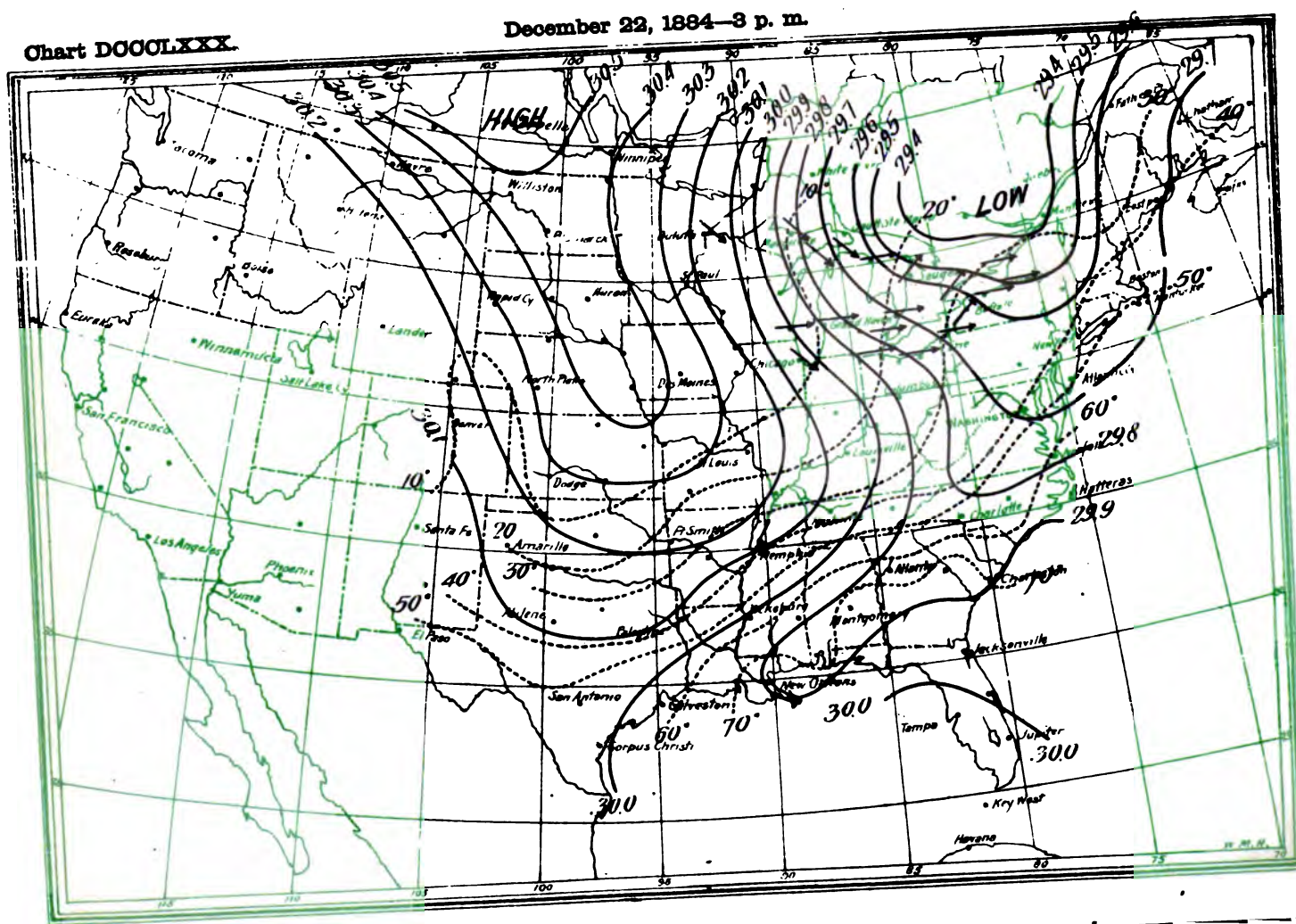


Chart D000LXXXI.

December 3, 1885—7 a. m.

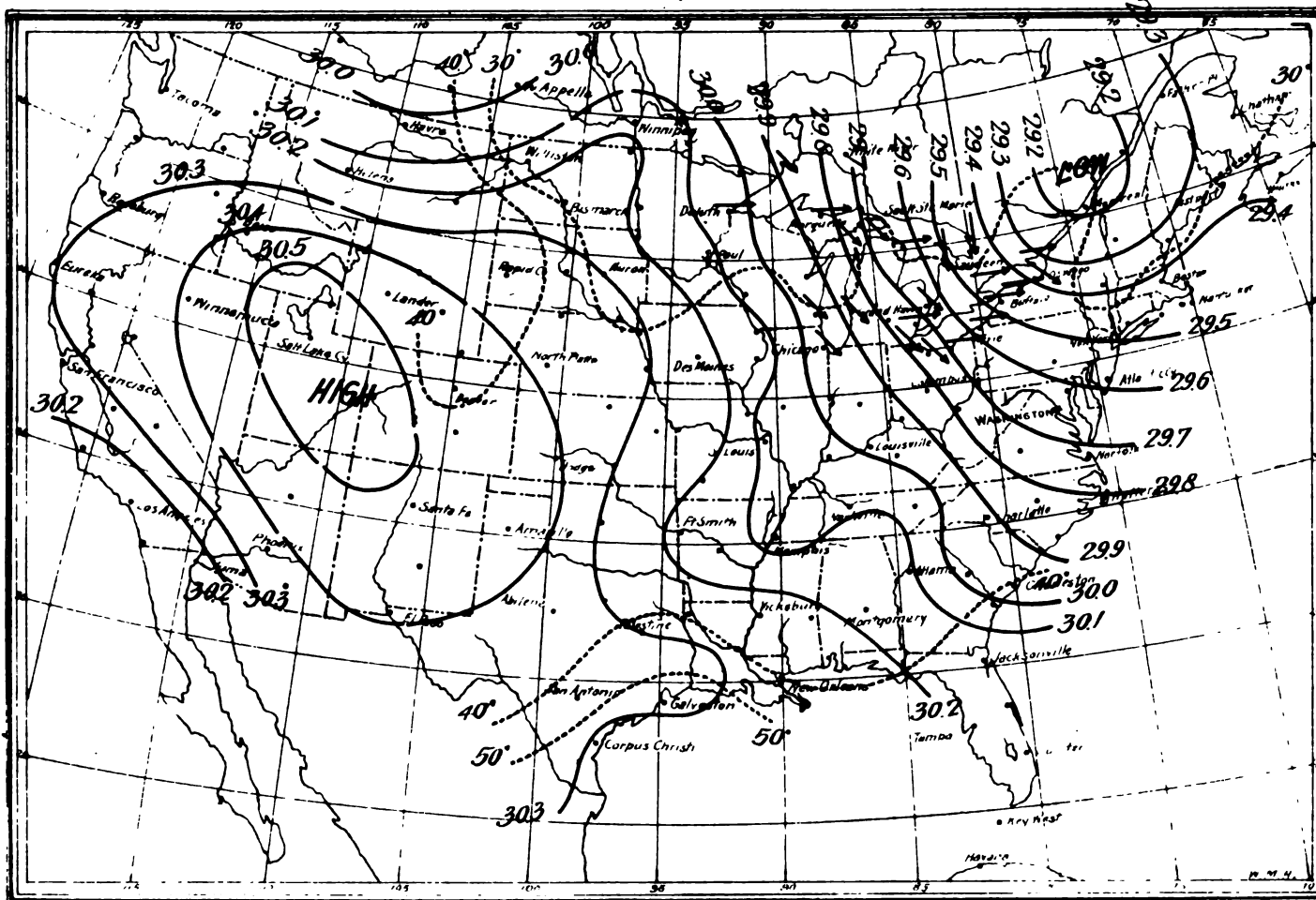


Chart D000LXXXII.

December 3, 1885—3 p. m.

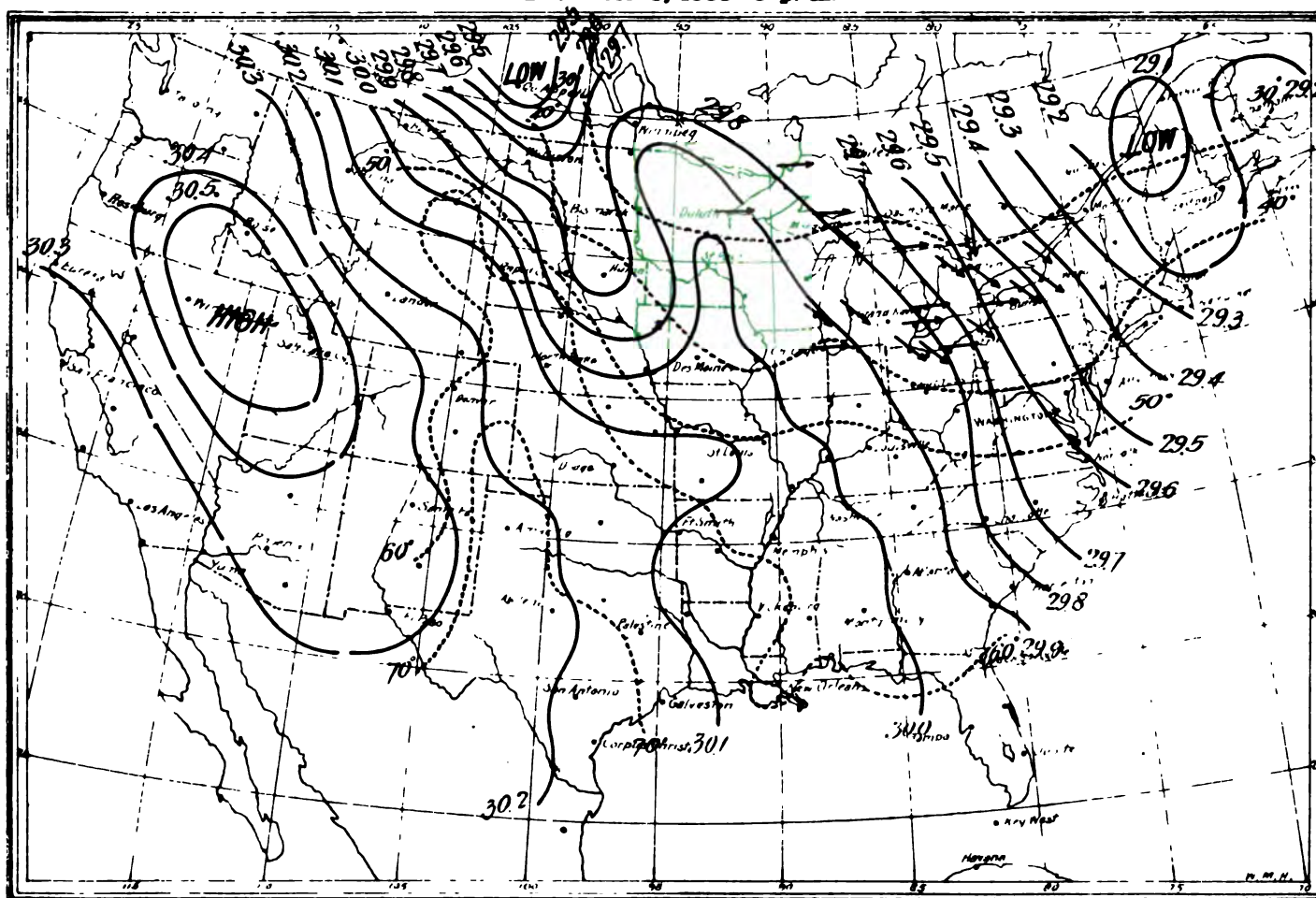


Chart DOOOLXXXIII.

December 4, 1885—7 a. m.

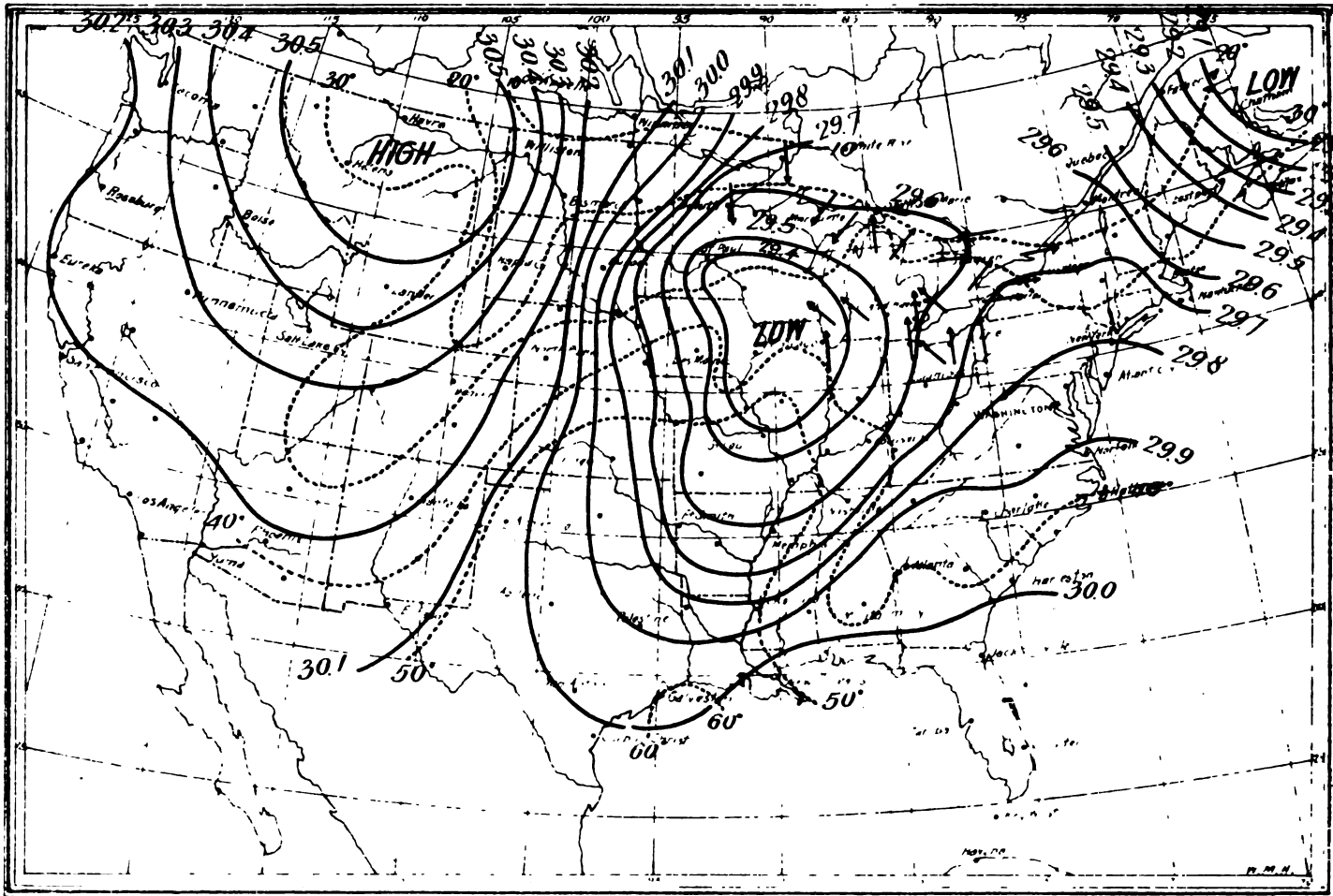


Chart DOOOLXXXIV.

December 4, 1885—3 p. m.

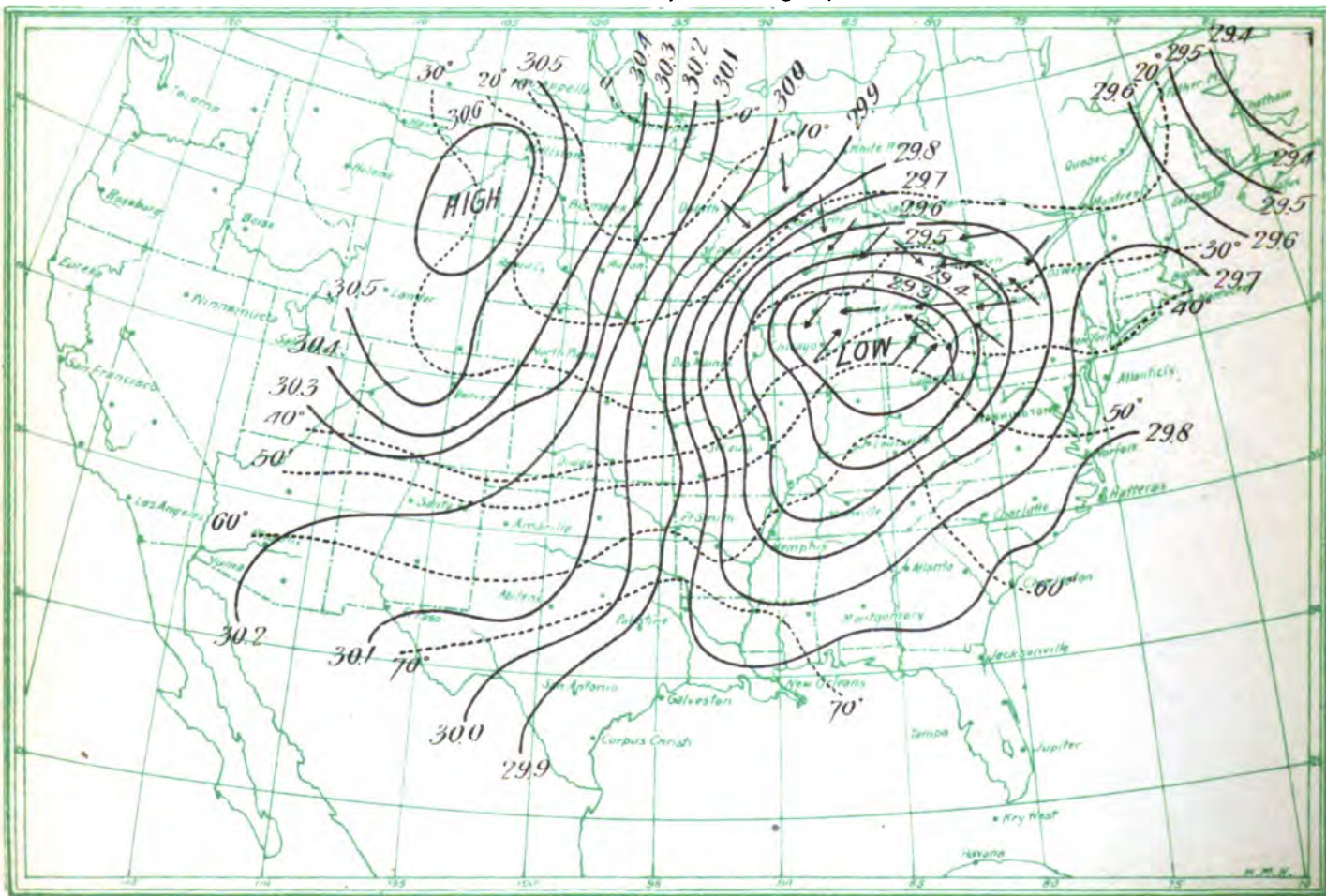


Chart DCCOLXXXV.

December 8, 1885—7 a. m.

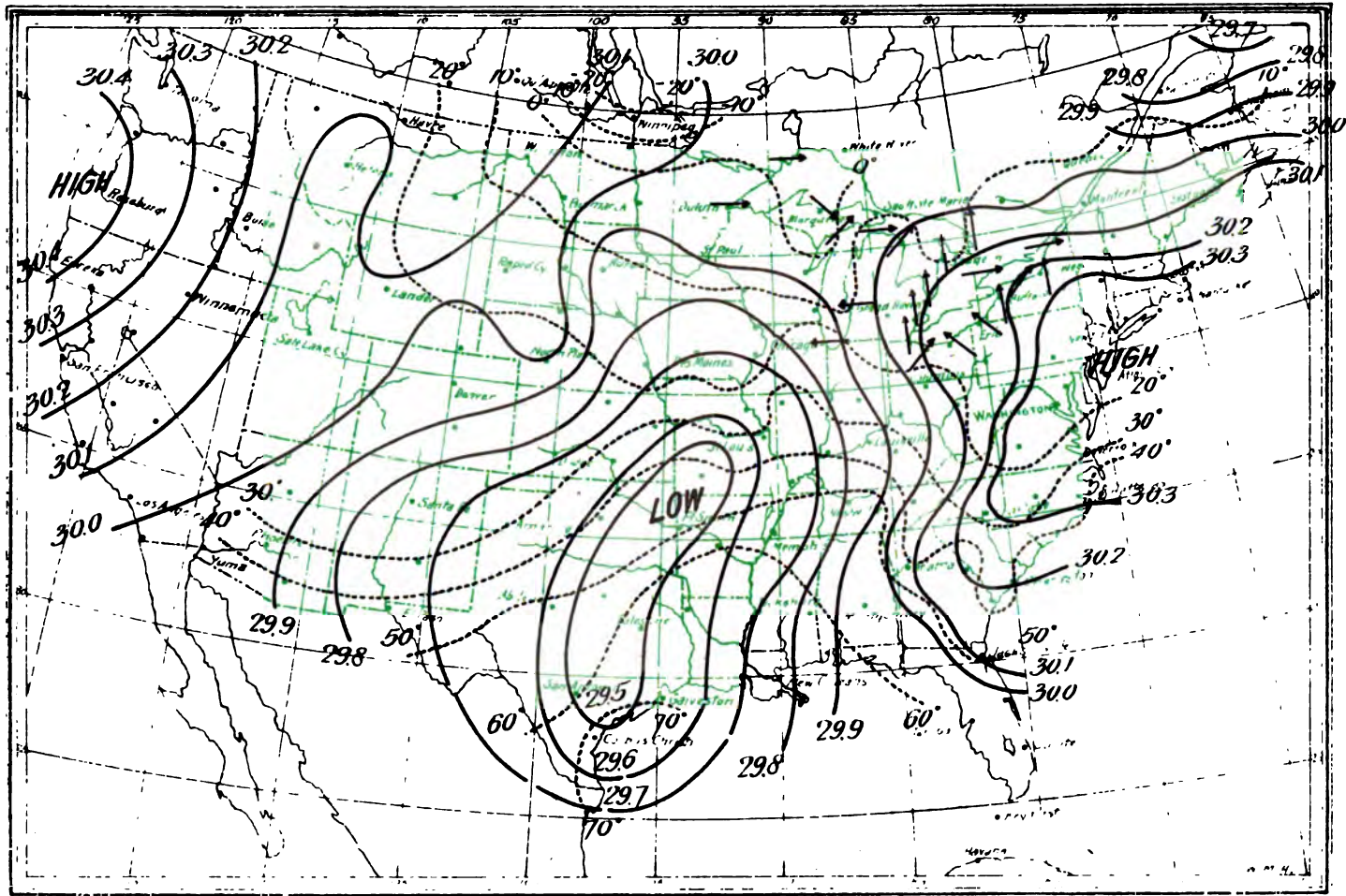


Chart DCCOLXXXVI.

December 8, 1885—3 p. m.

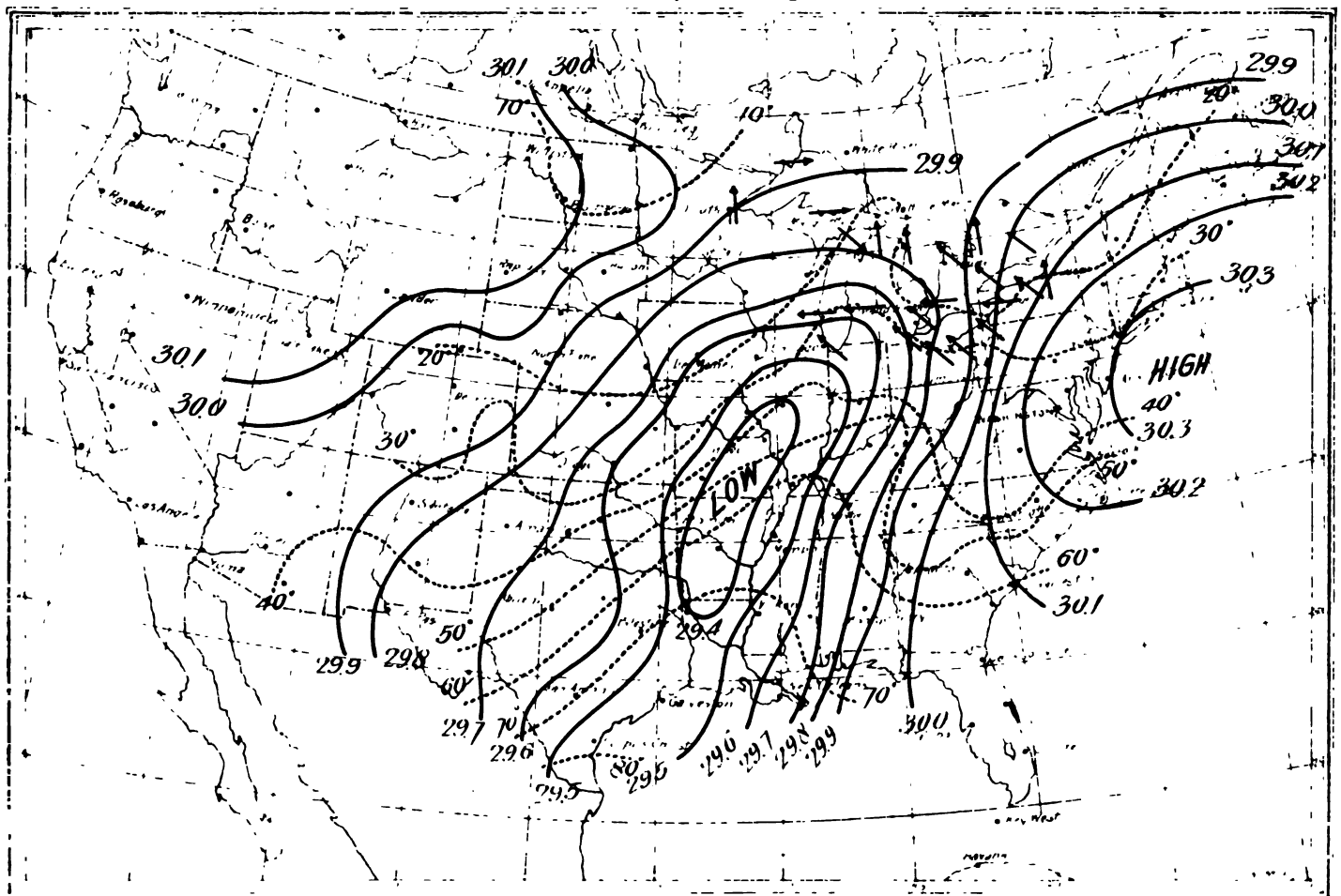


Chart DCCCLXXXVII.

December 9, 1885—7 a. m.

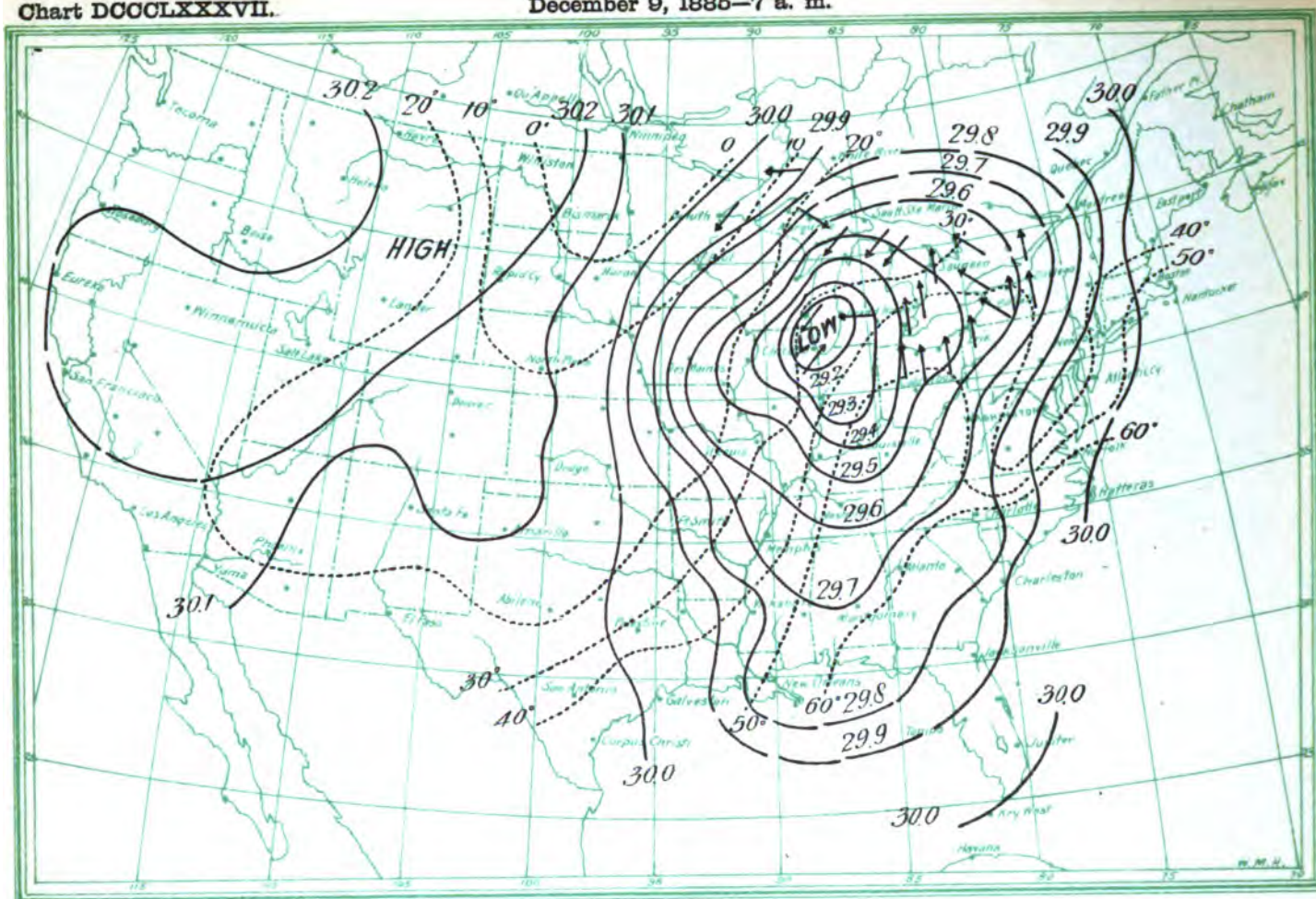


Chart DCCCLXXXVIII.

December 9, 1885—3 p. m.

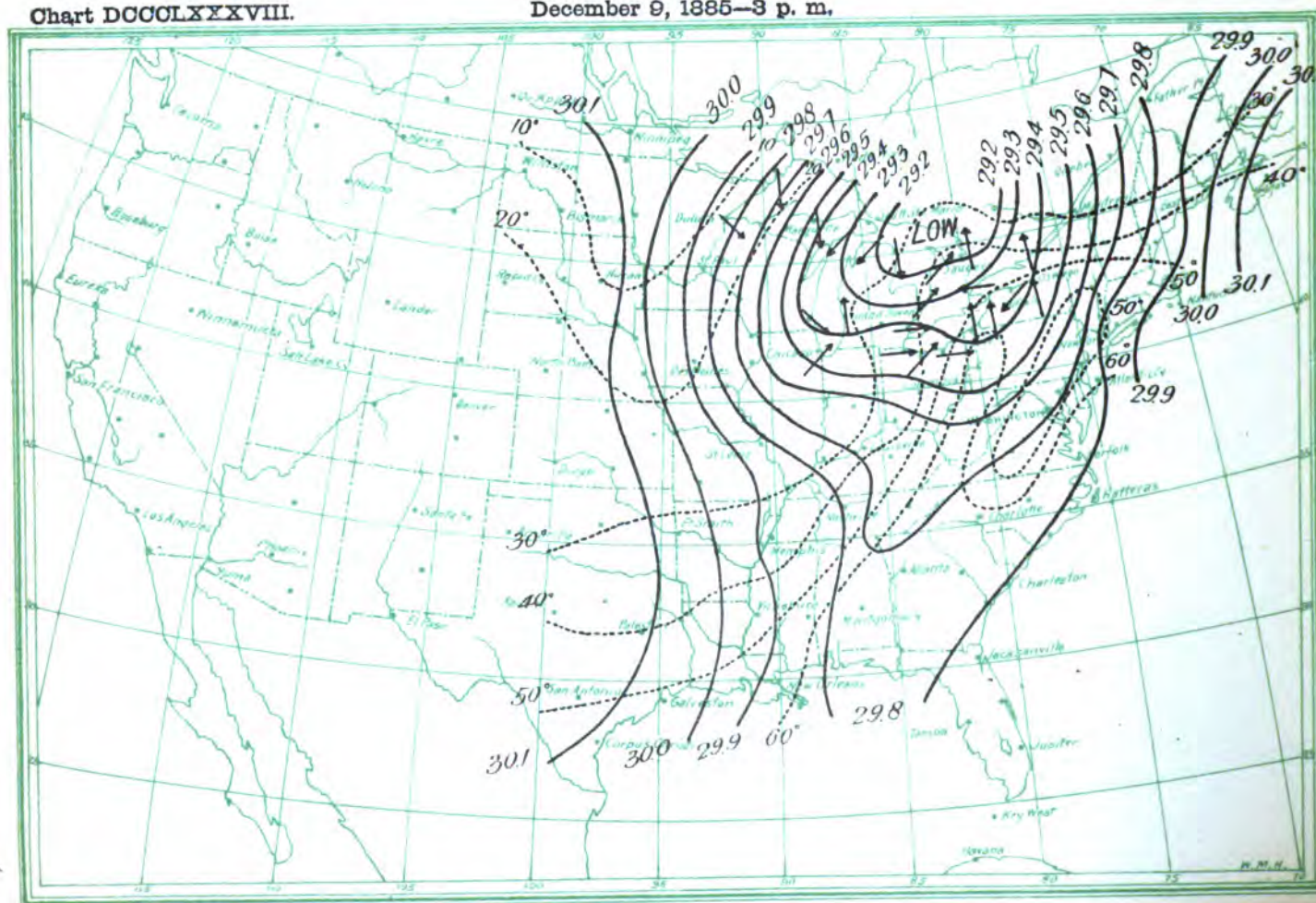


Chart D000LXXXIX.

December 1, 1886—7 a. m.

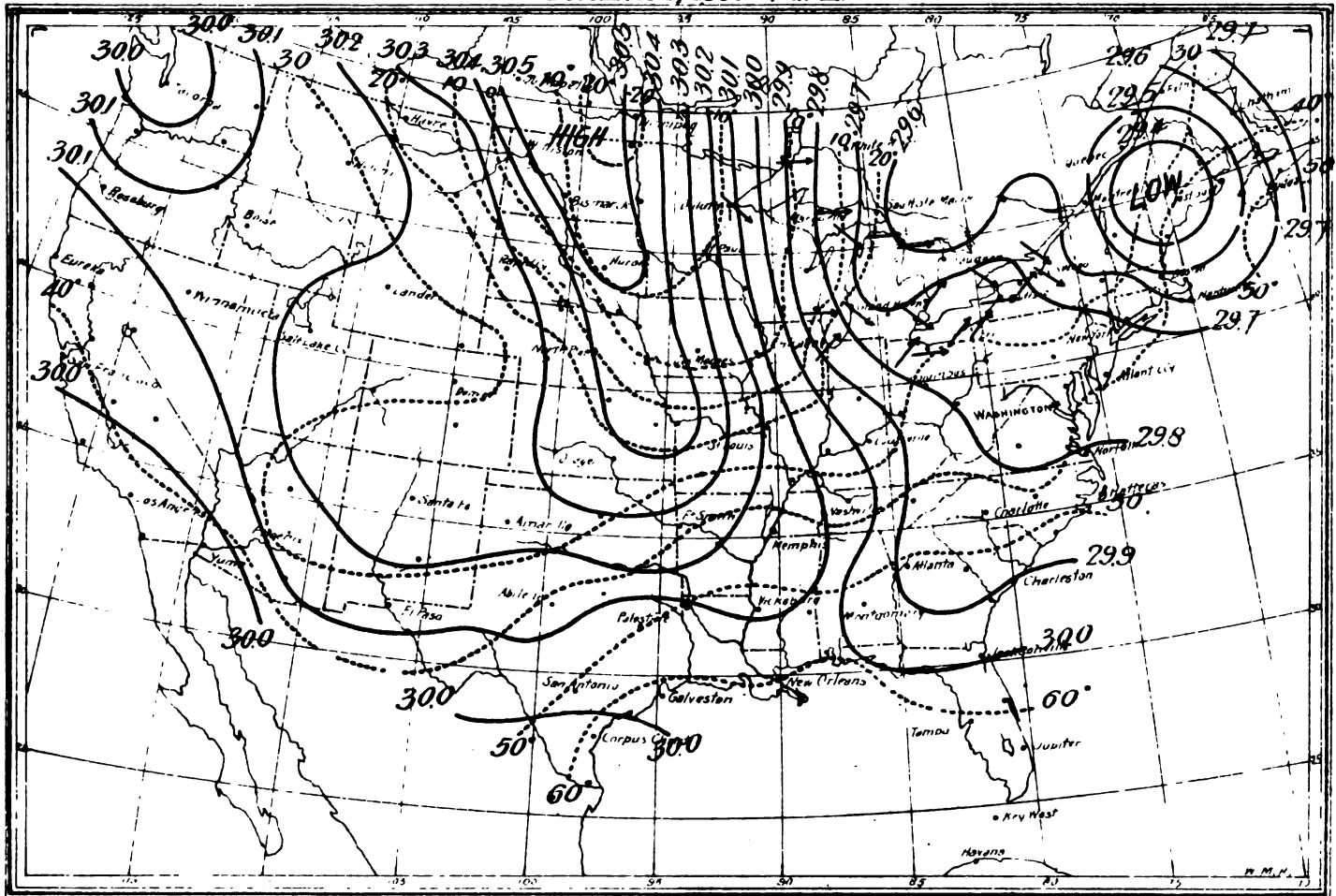


Chart D000XC.

December 1, 1886—3 p. m.

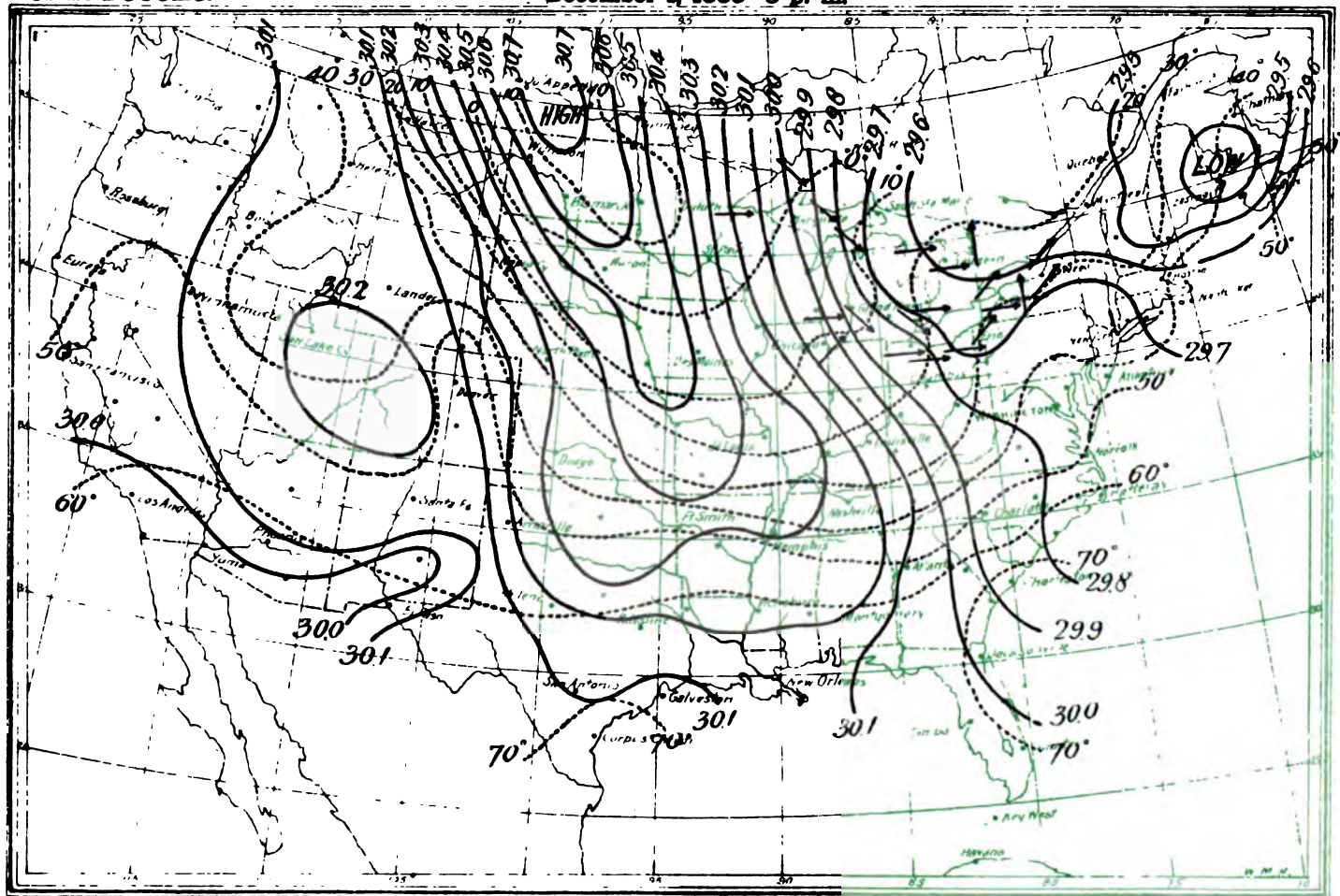


Chart D000XOI.

December 2, 1886—7 a. m.

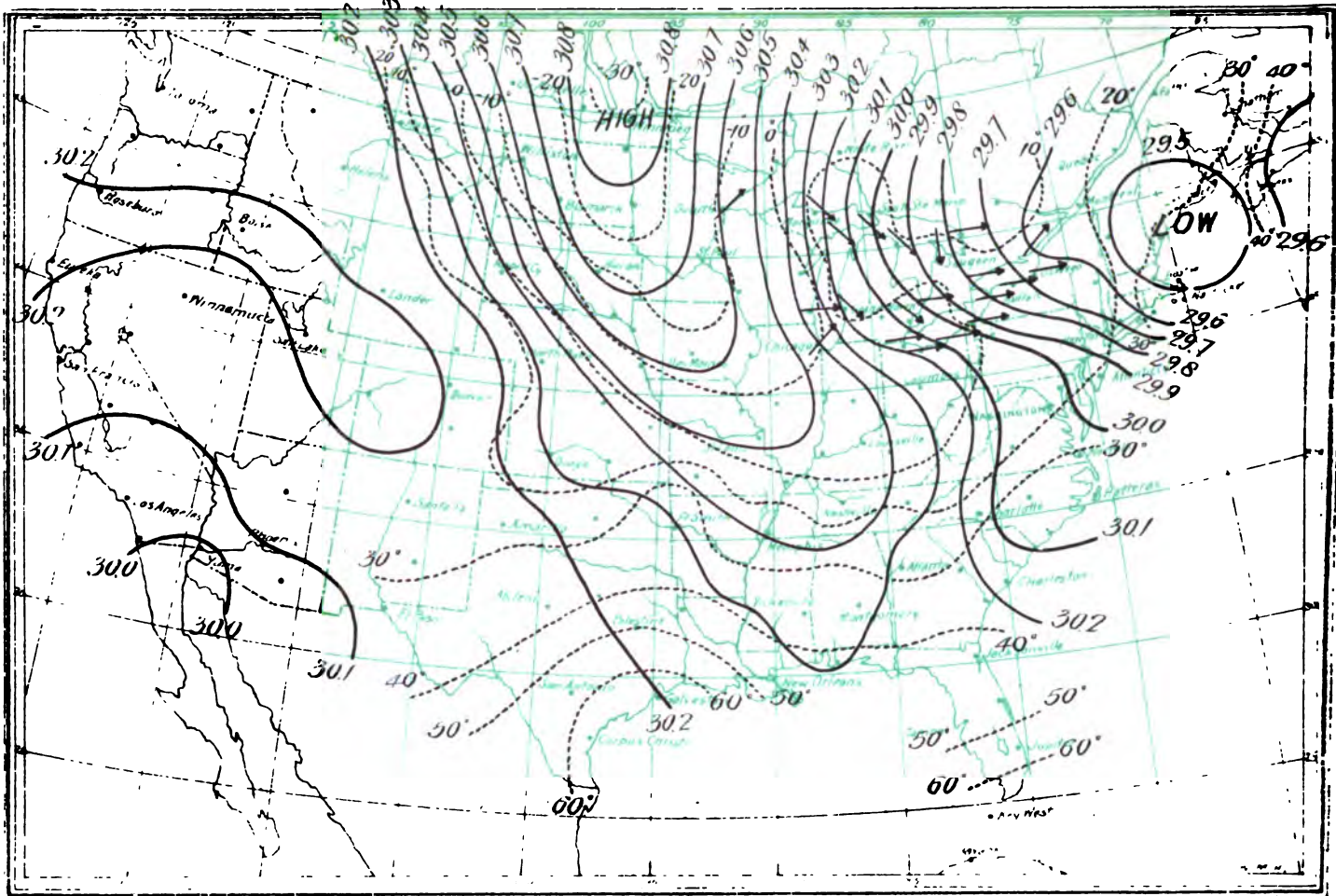


Chart D000XOII.

December 2, 1886—3 p. m.

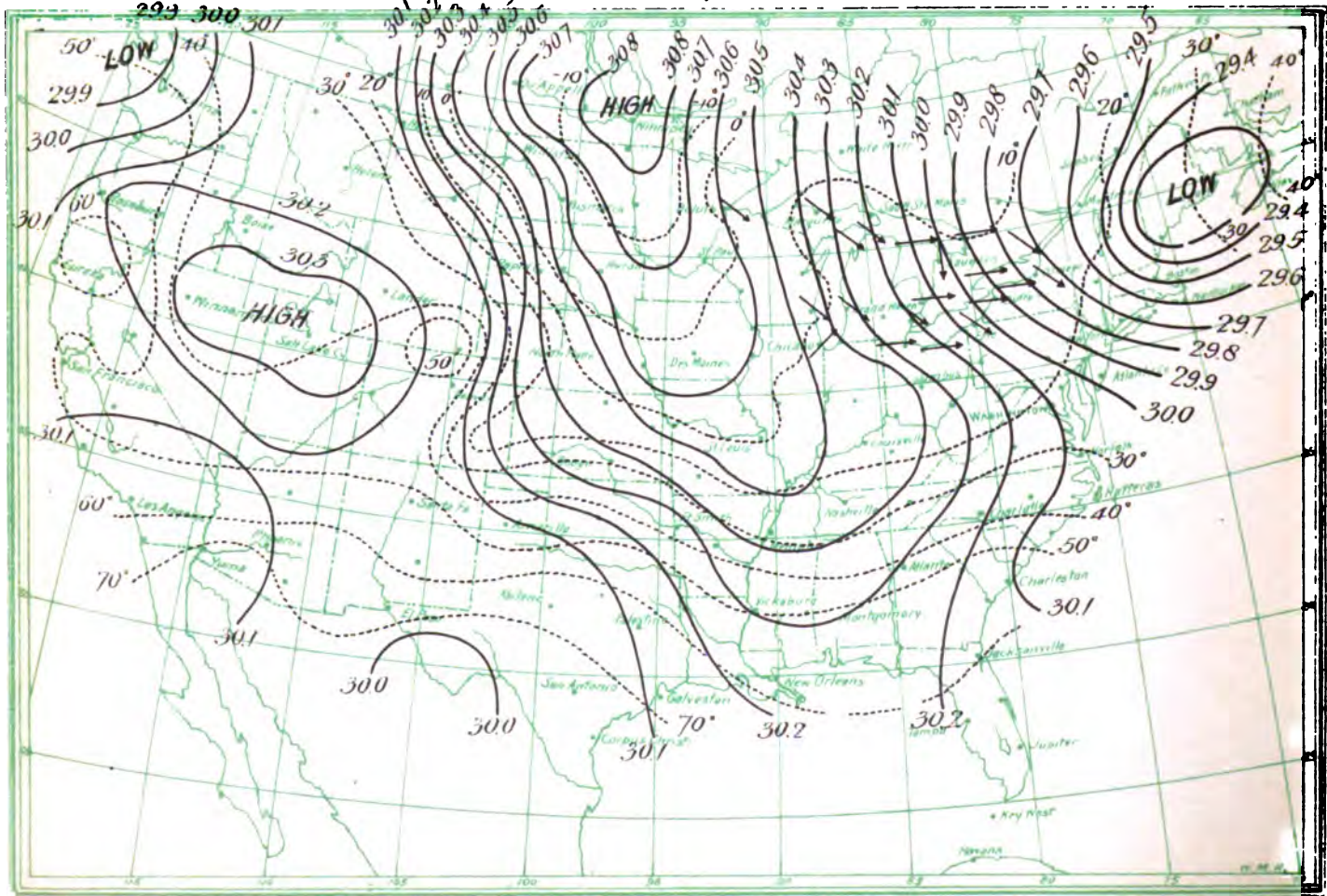


Chart DCCCCIII.

December 3, 1886—7 a. m.

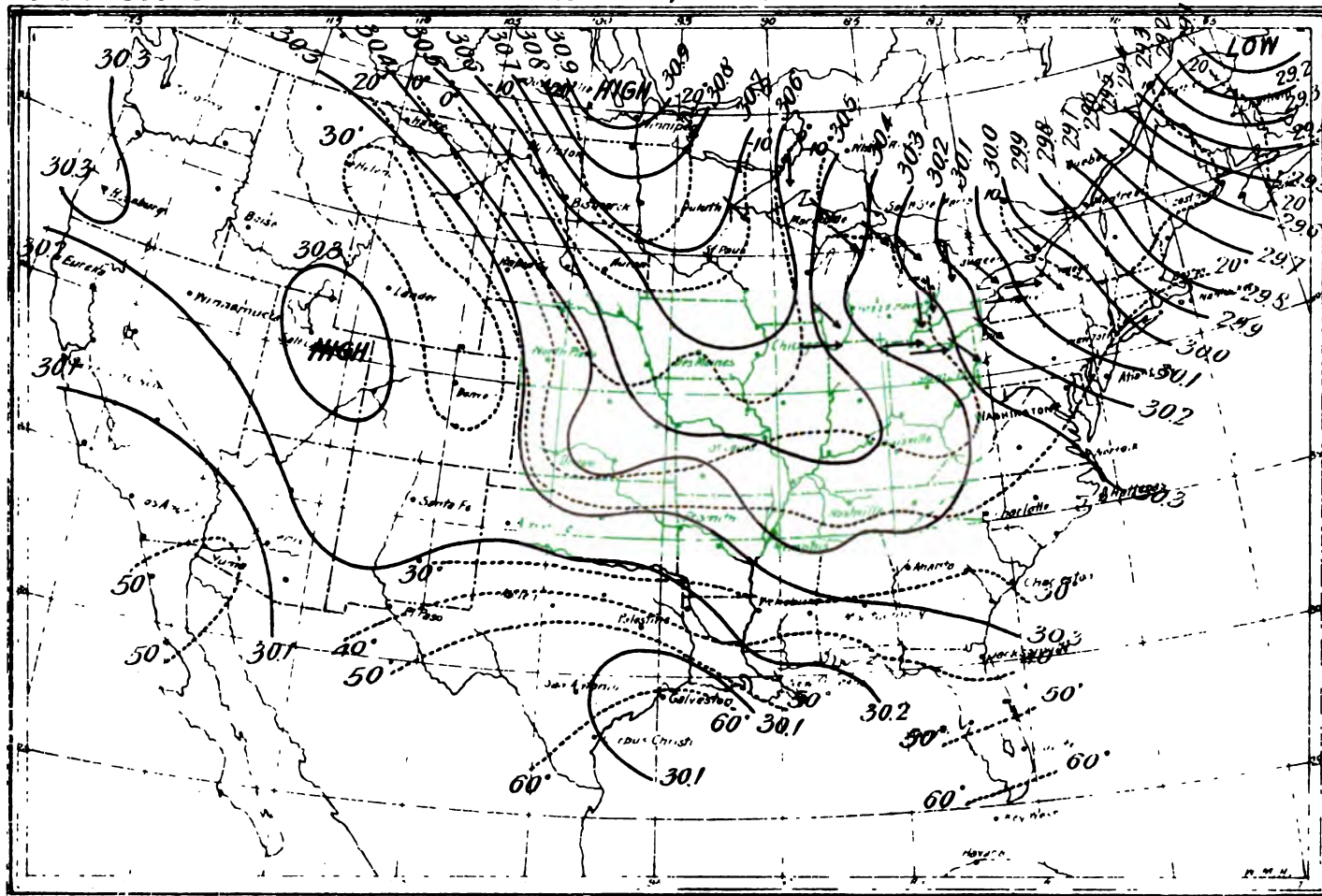


Chart DCCCCIV.

December 3, 1886—3 p. m.

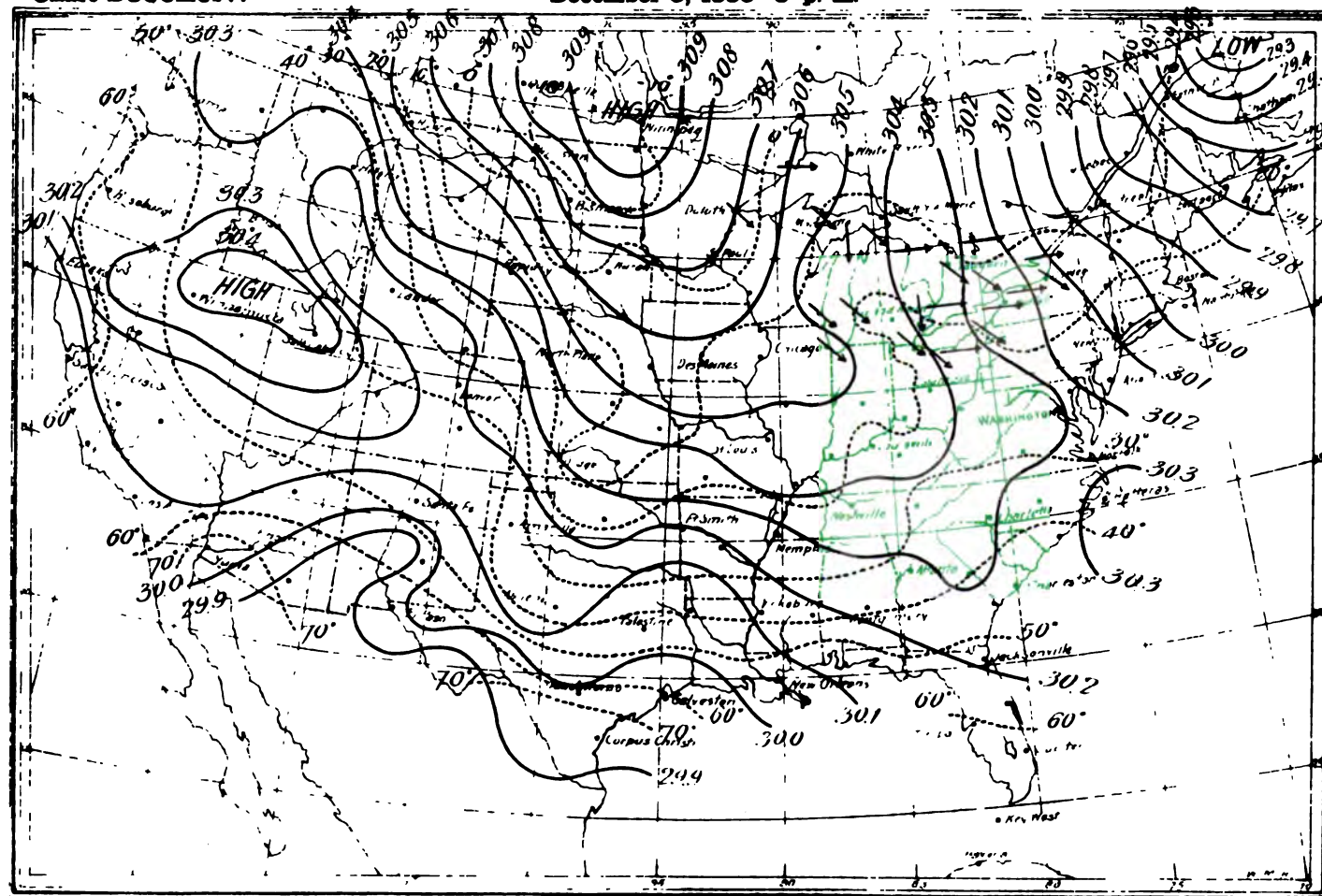


Chart DCCCCXV.

December 4, 1886—7 a. m.

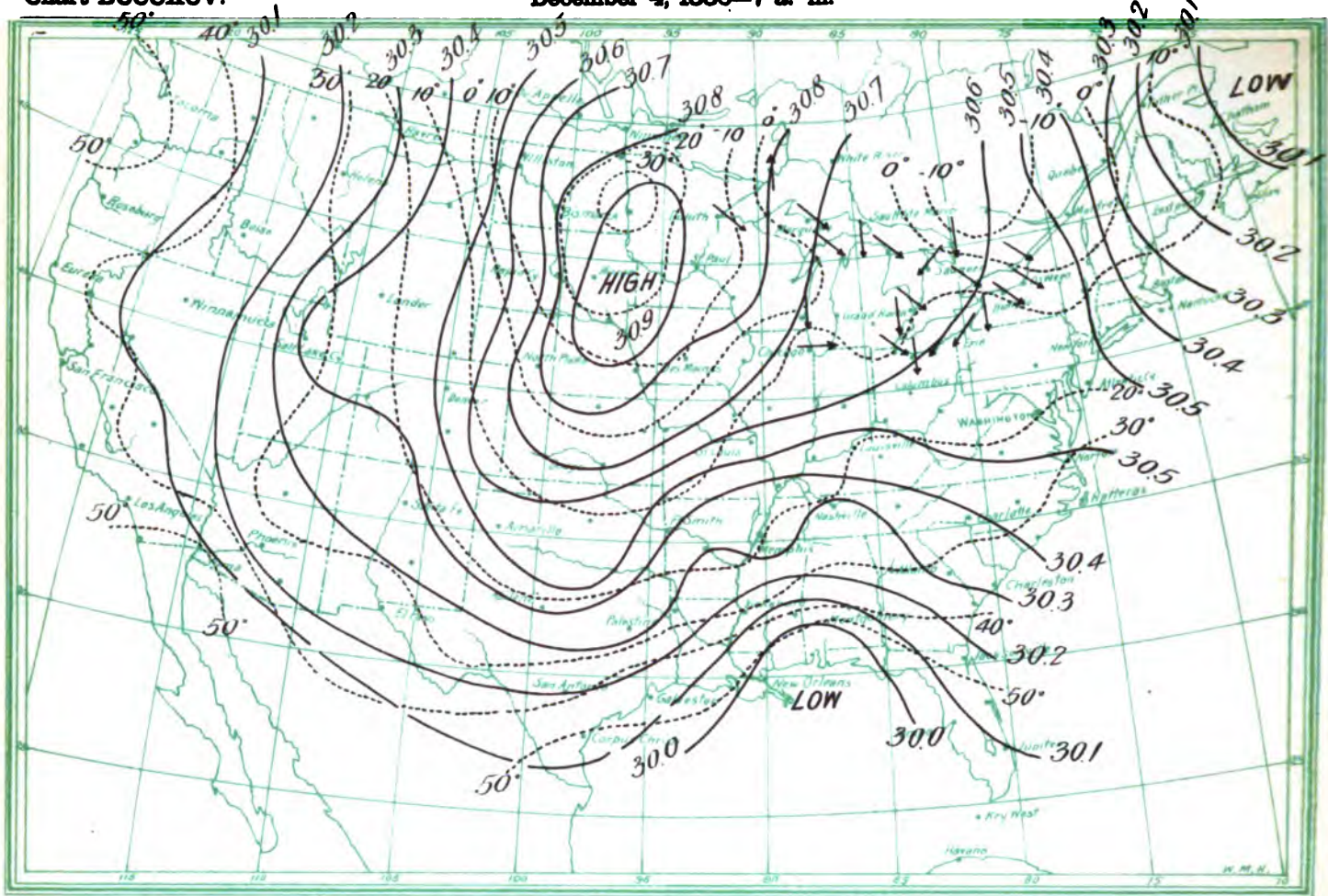


Chart DCCCCXVI.

December 4, 1886—3 p. m.

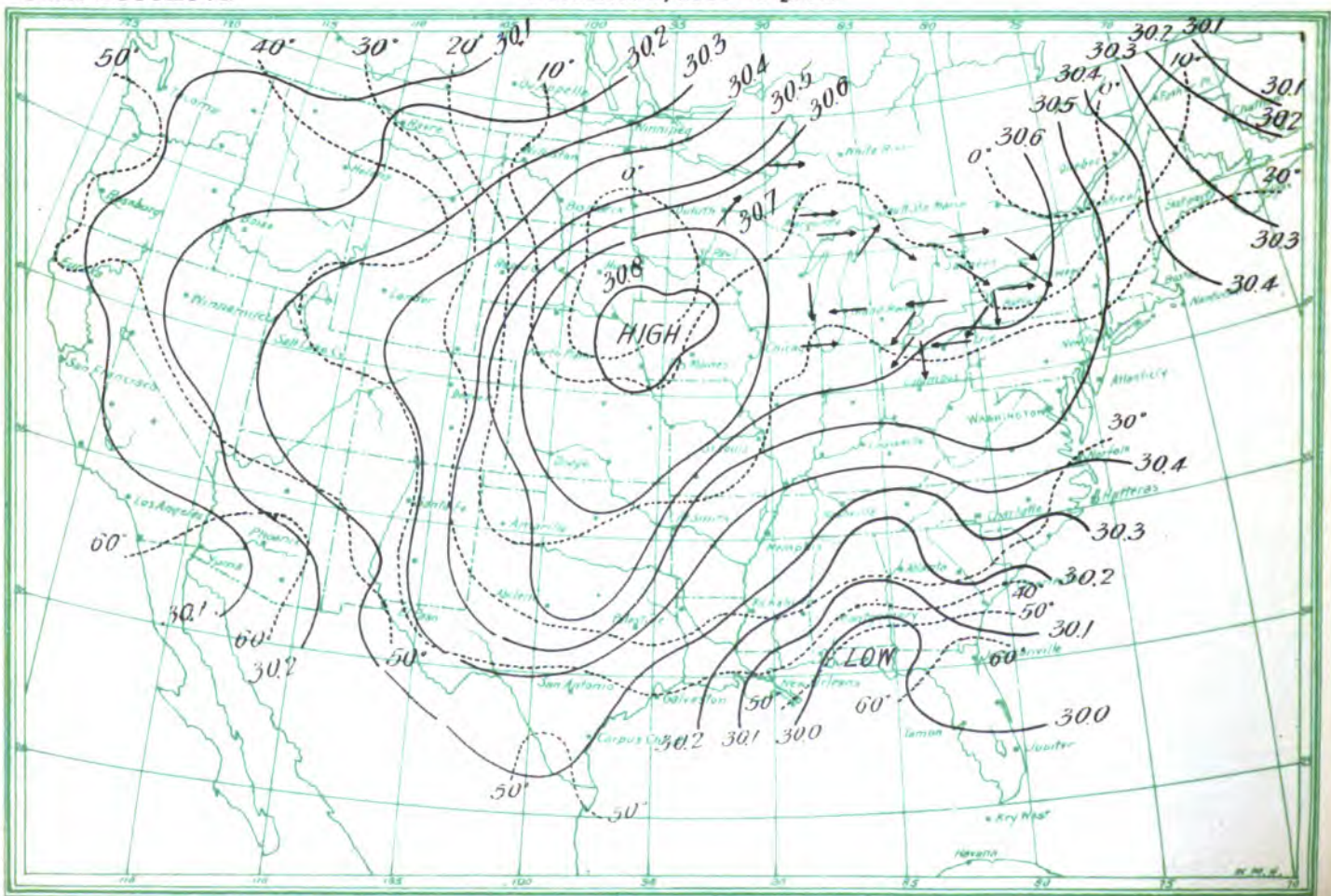


Chart D000XOVII.

December 4, 1888—8 a. m.

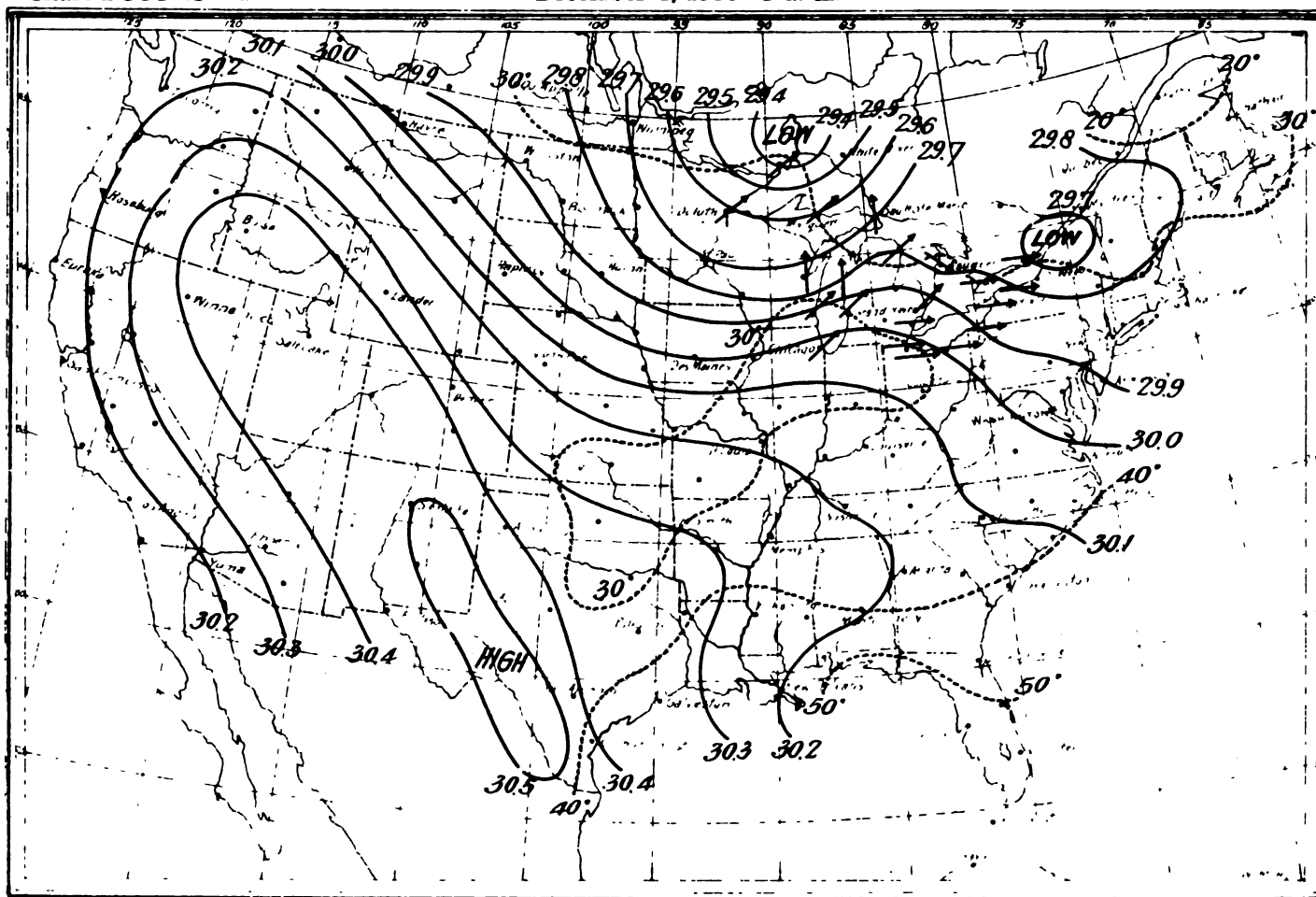


Chart D000XOVIII.

December 4, 1888—8 p. m.

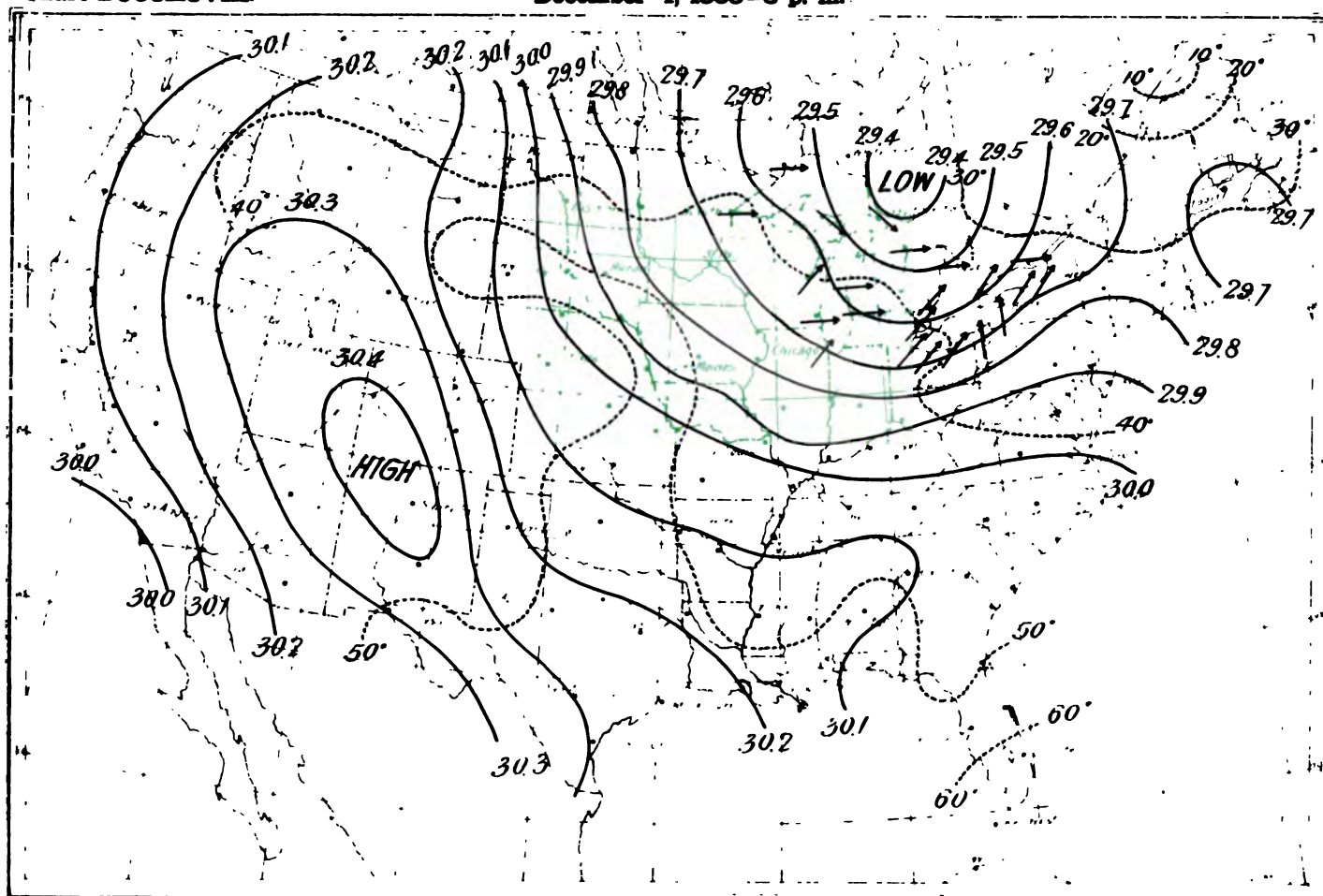


Chart DCCCCIX.

December 5, 1888—8 a. m.

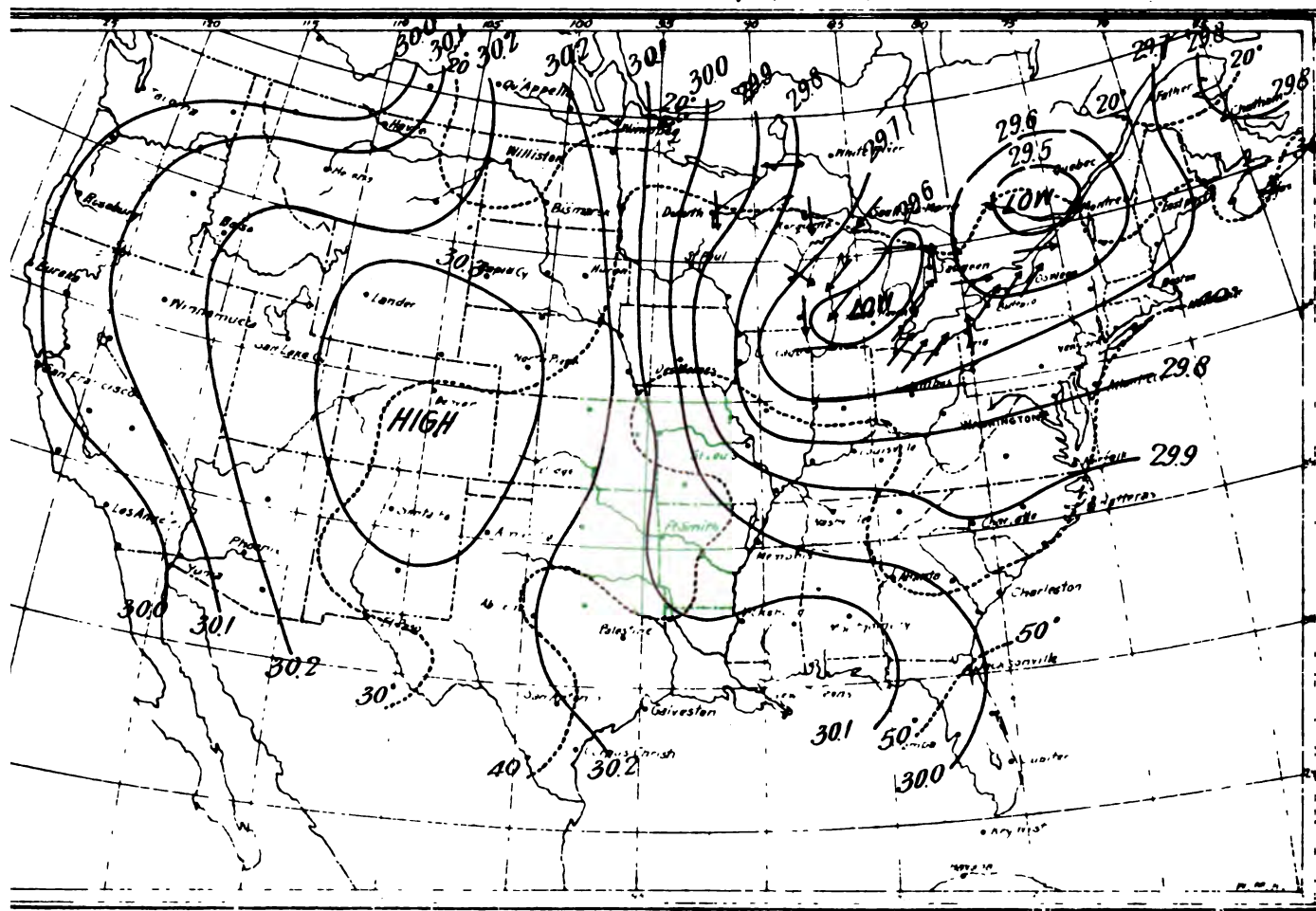


Chart DCCCC.

December 5, 1888—8 p. m.

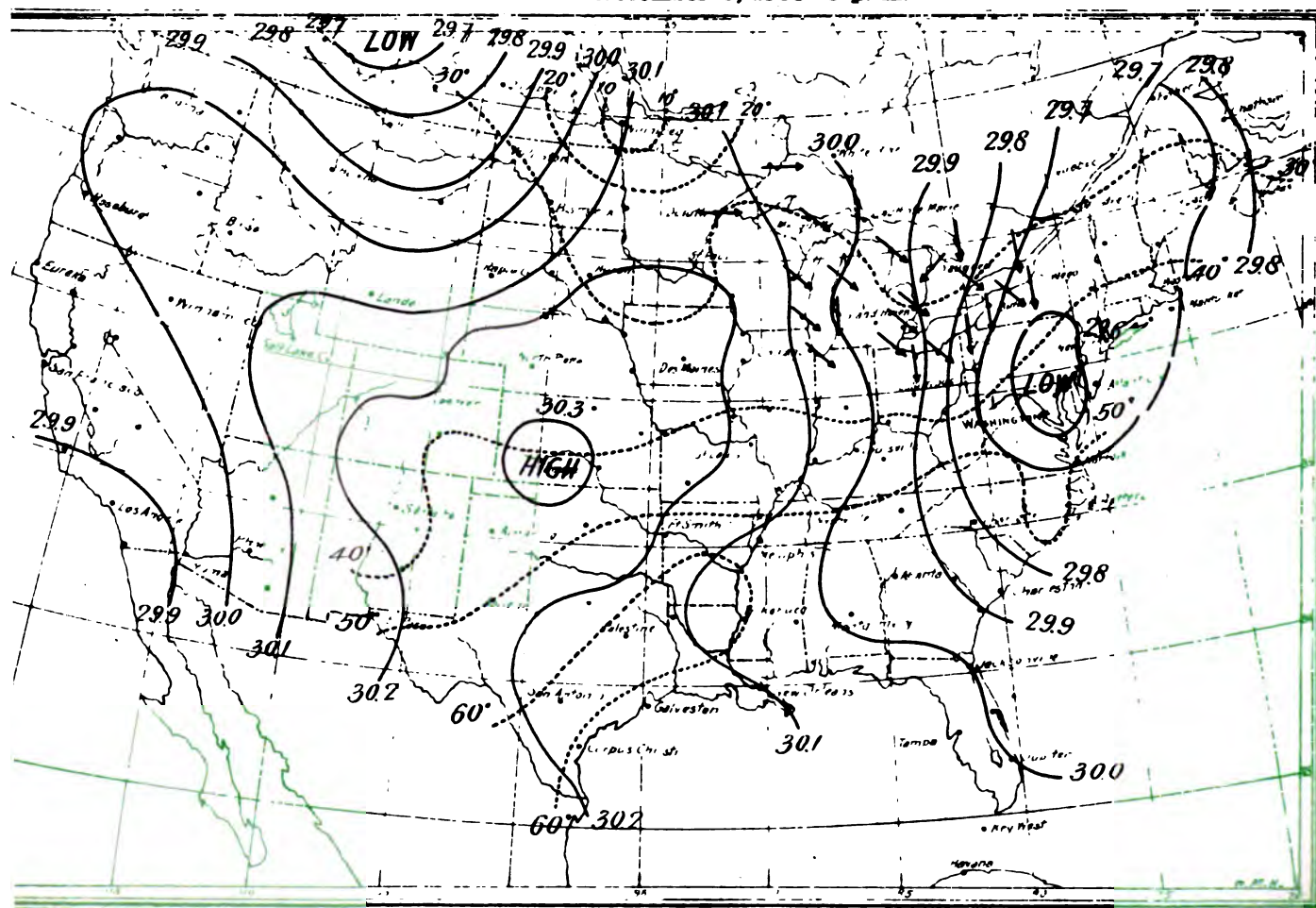


Chart D00001.

December 24, 1889—8 a. m.

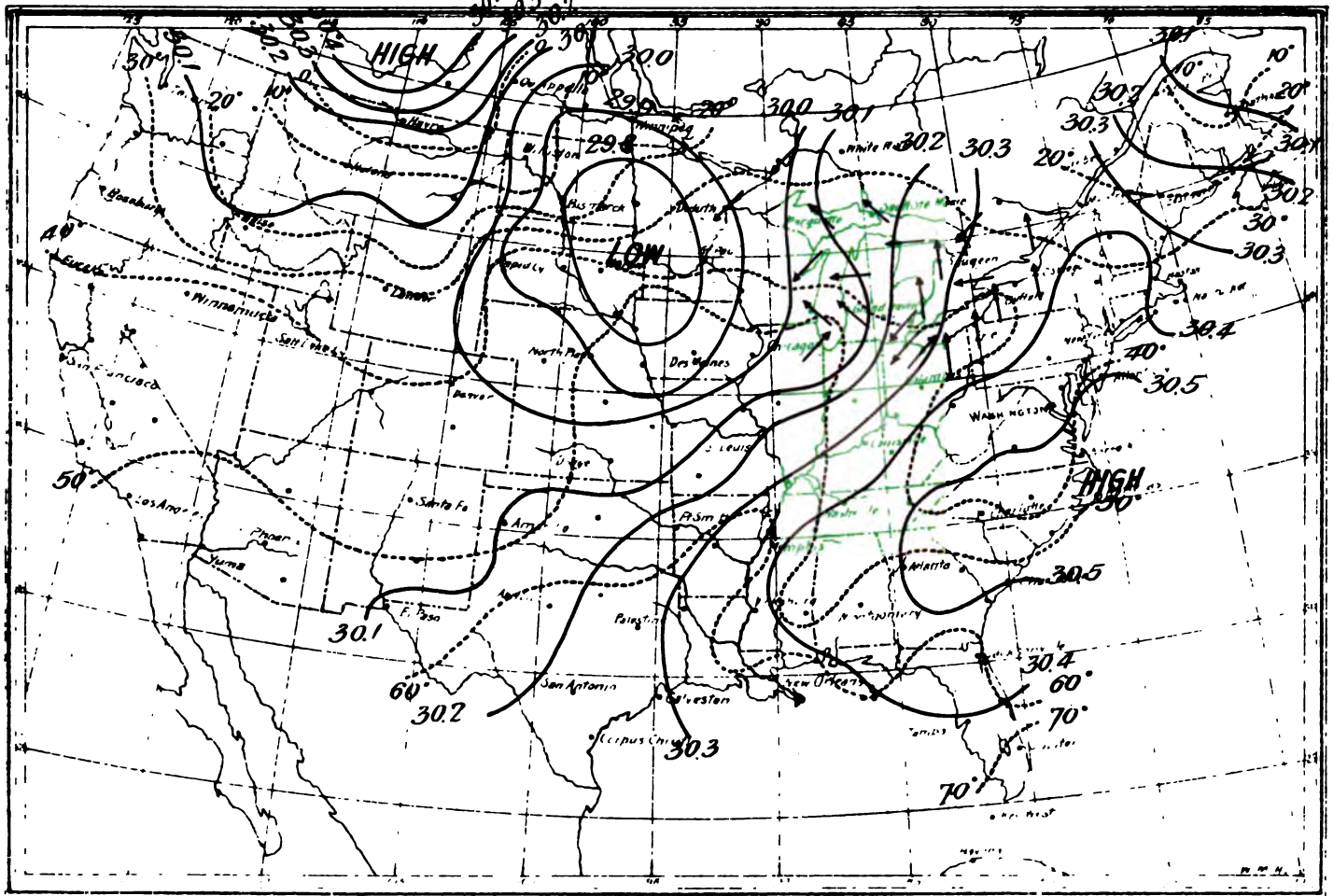


Chart D00001.

December 24, 1889—8 p. m.

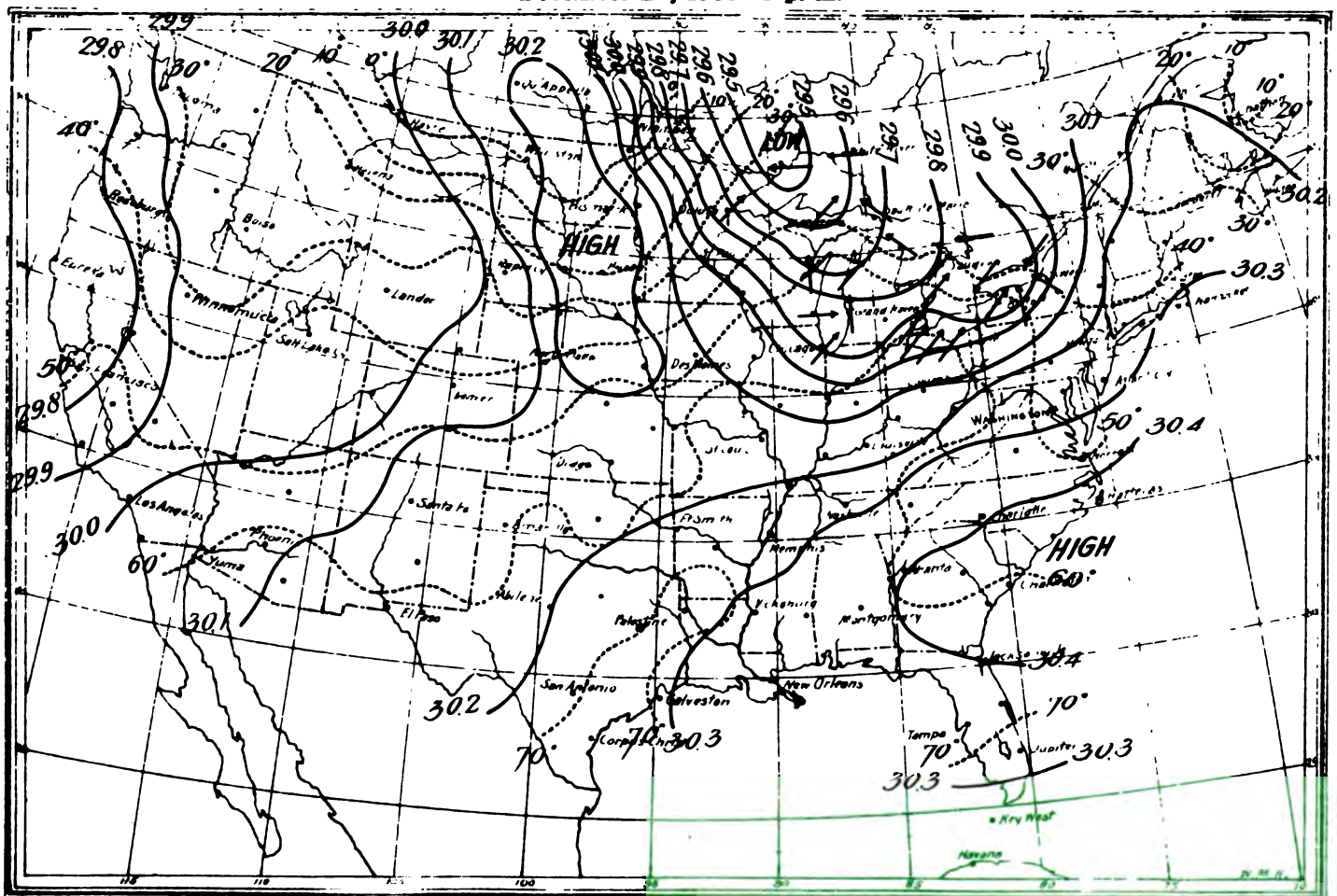


Chart DCCCCIII.

December 25, 1889—8 a. m.

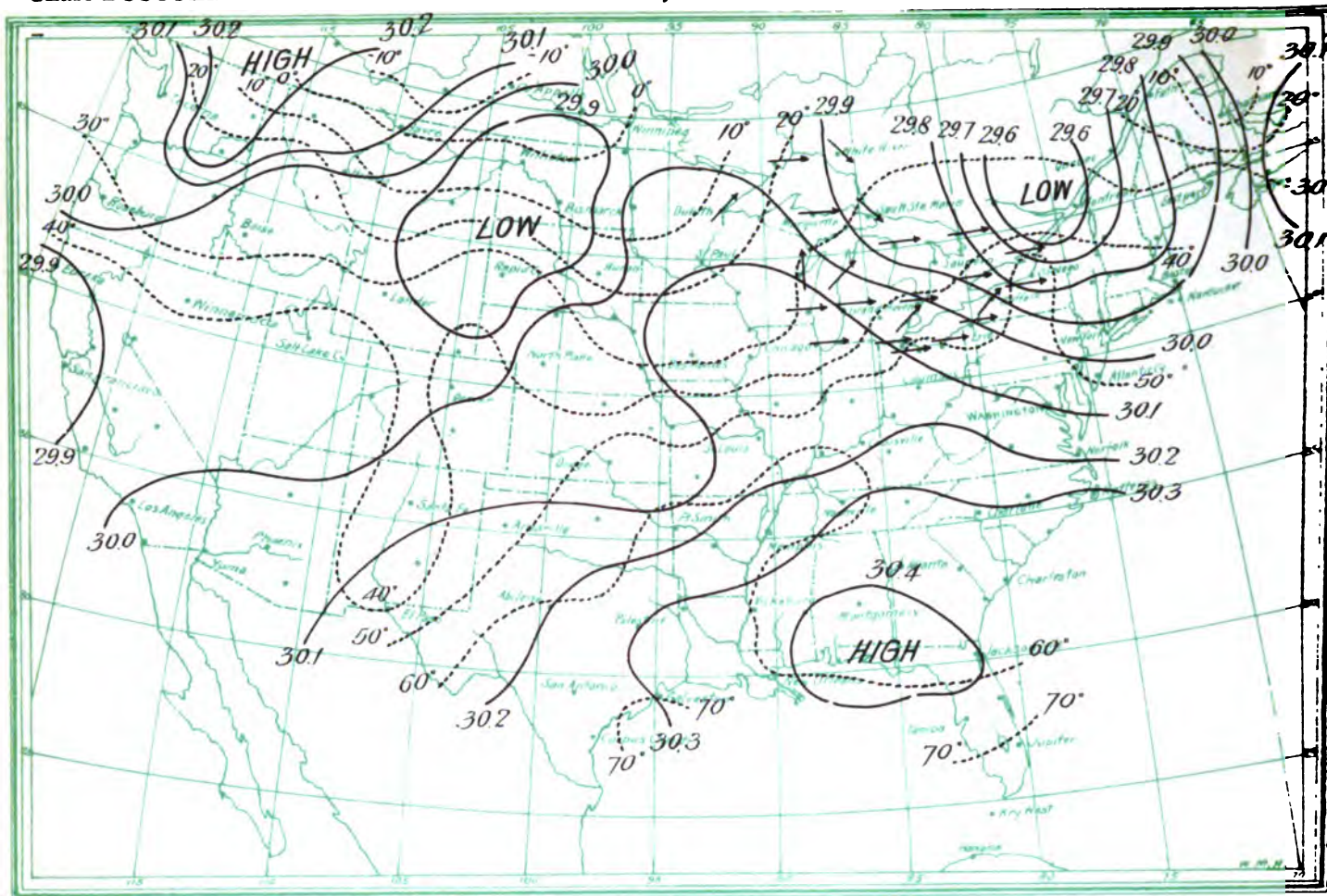


Chart DCCCCIV.

December 25, 1889—8 p. m.

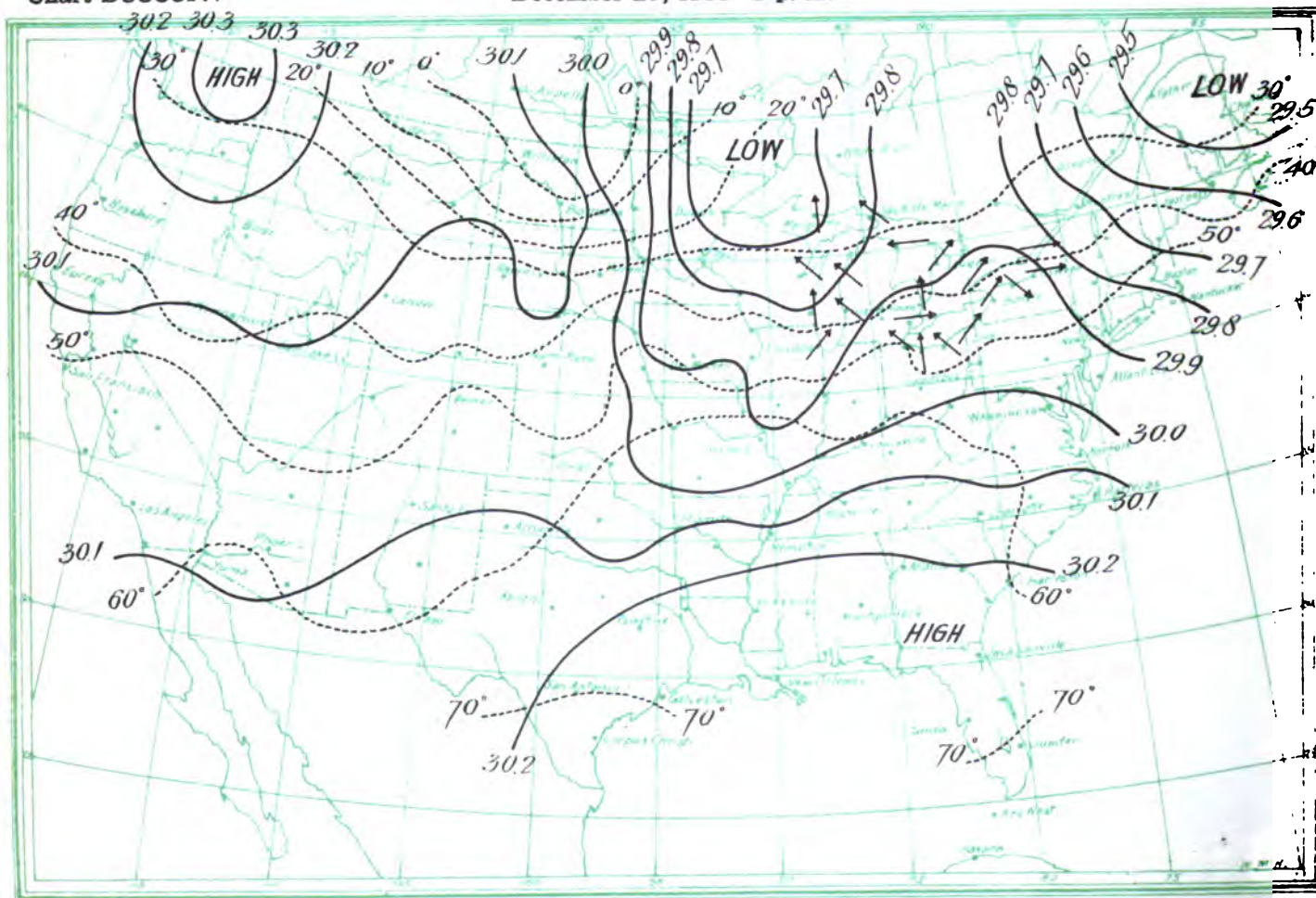


Chart D0000V.

December 10, 1890—8 a. m.

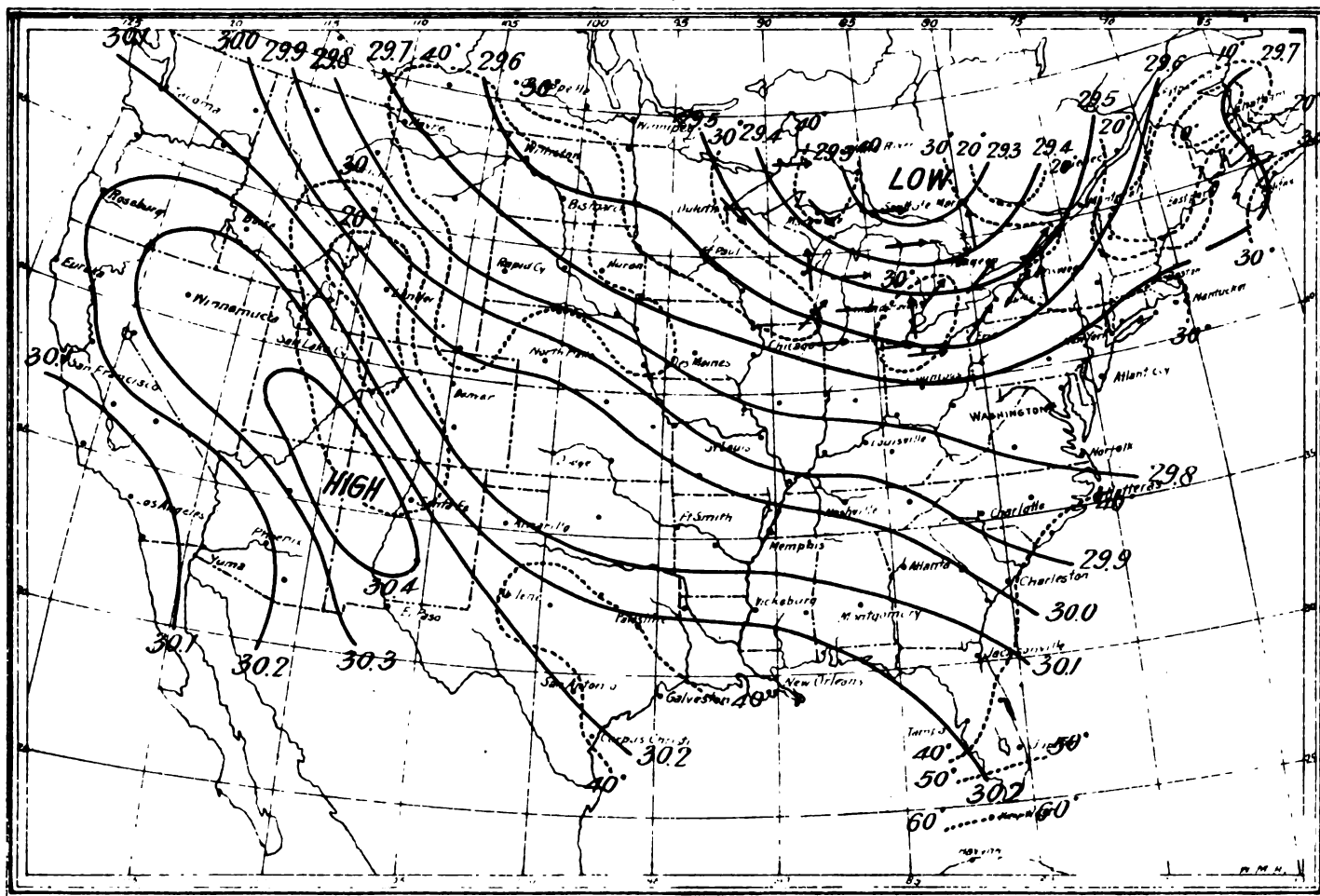


Chart D0000VI.

December 10, 1890—8 p. m.

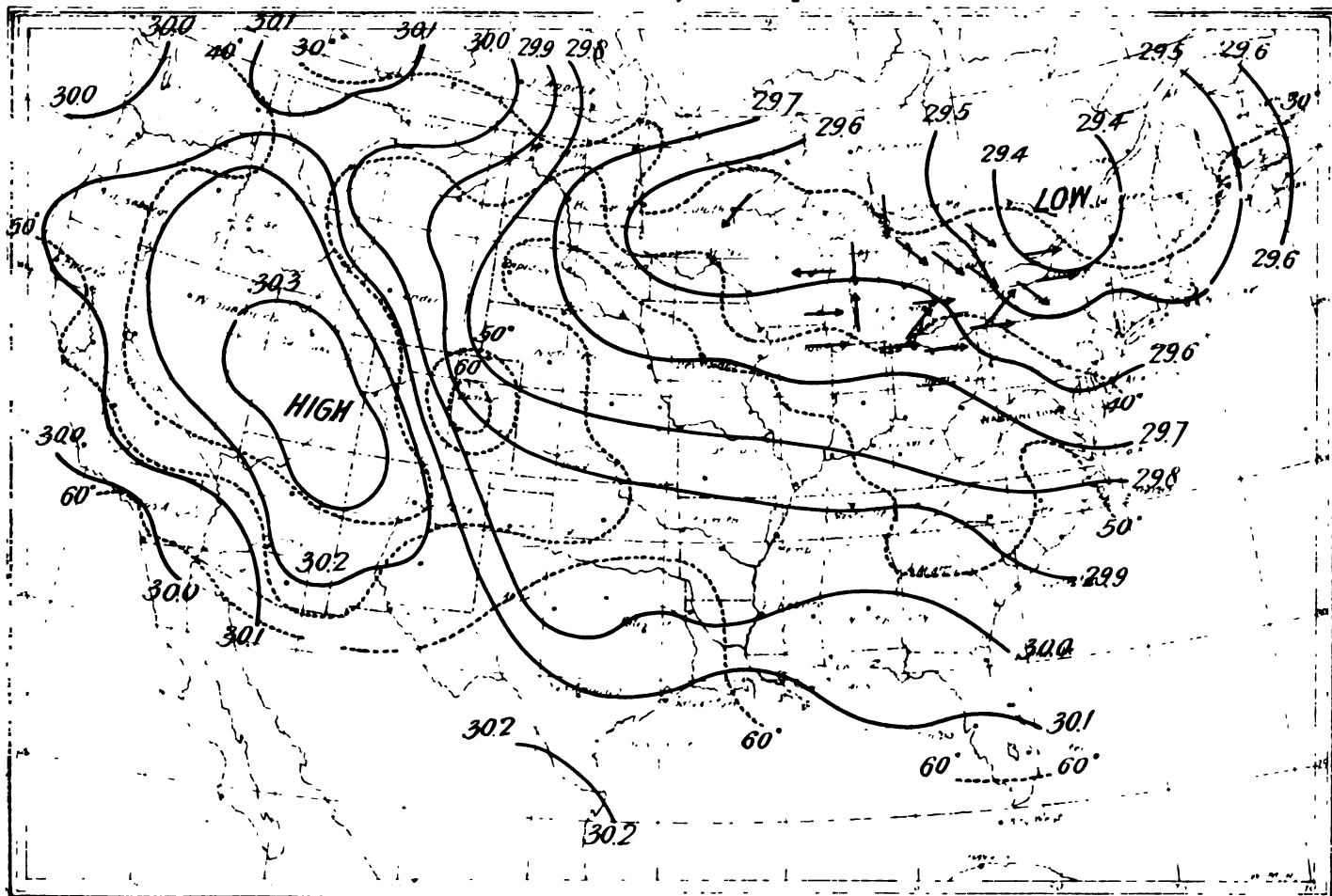


Chart DCCCCVII.
December 11, 1890—8 a. m.

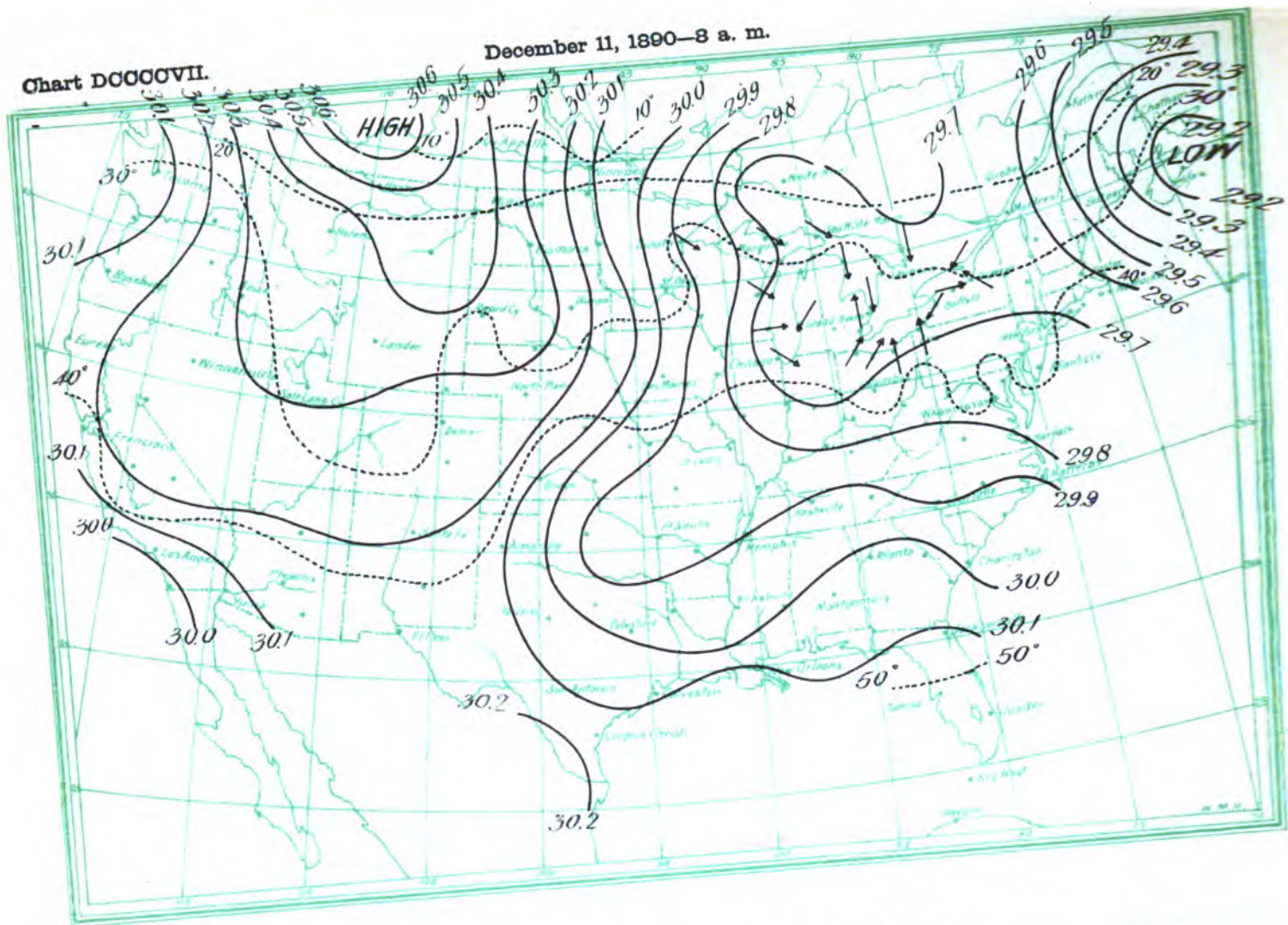


Chart DCCCCVIII.
December 11, 1890—8 p. m.

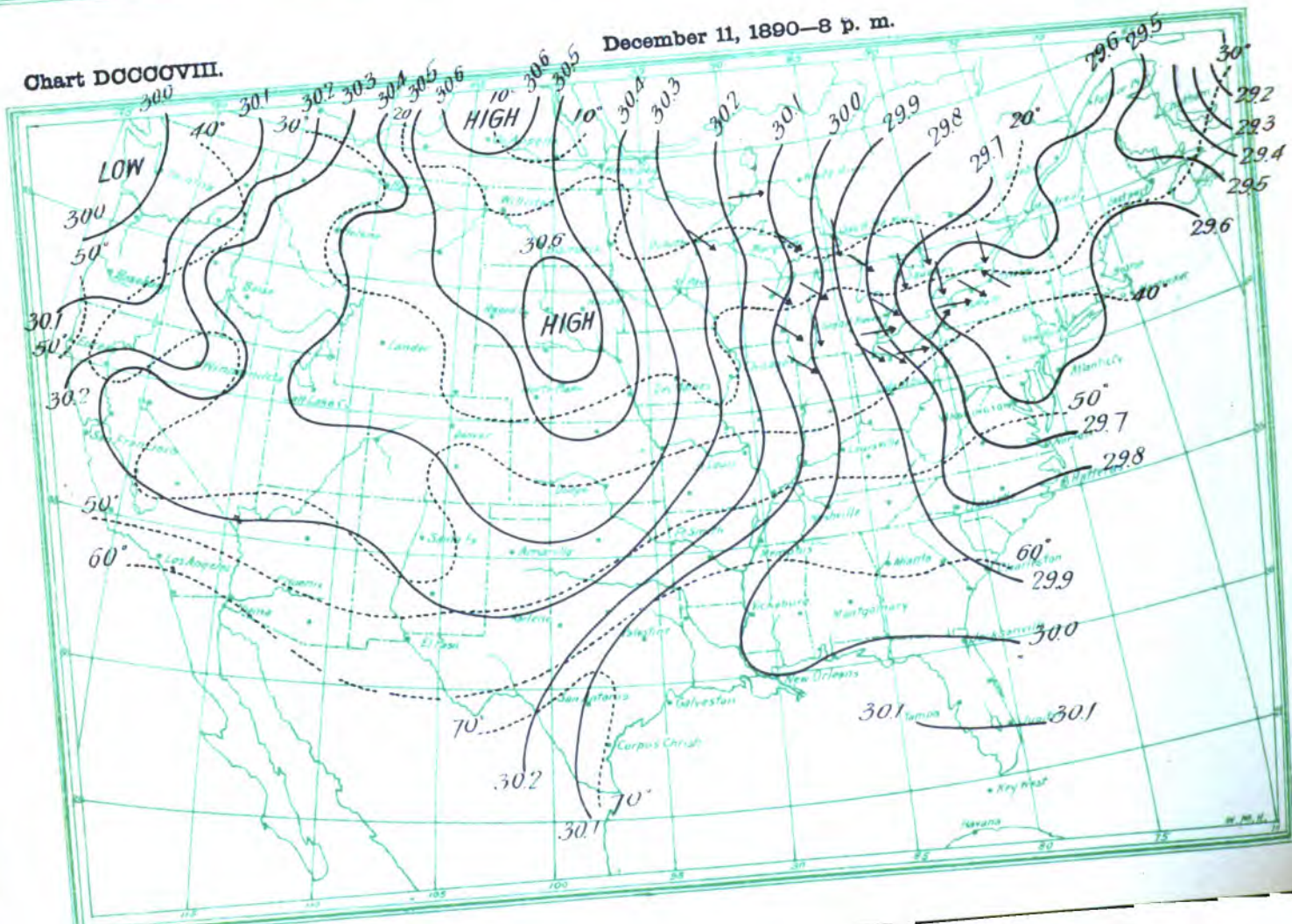


Chart DCCCCX.

December 27, 1890—8 p. m.

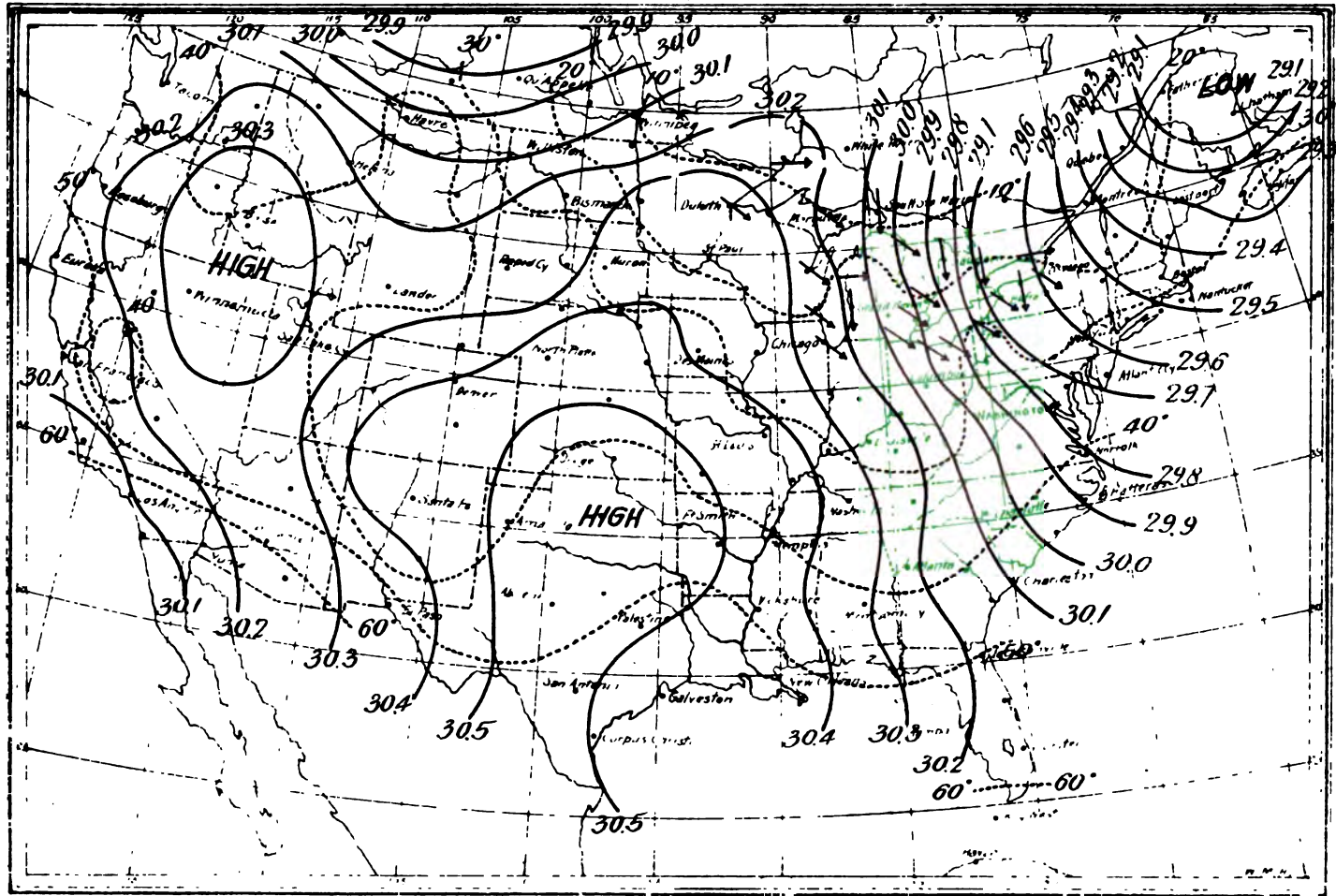
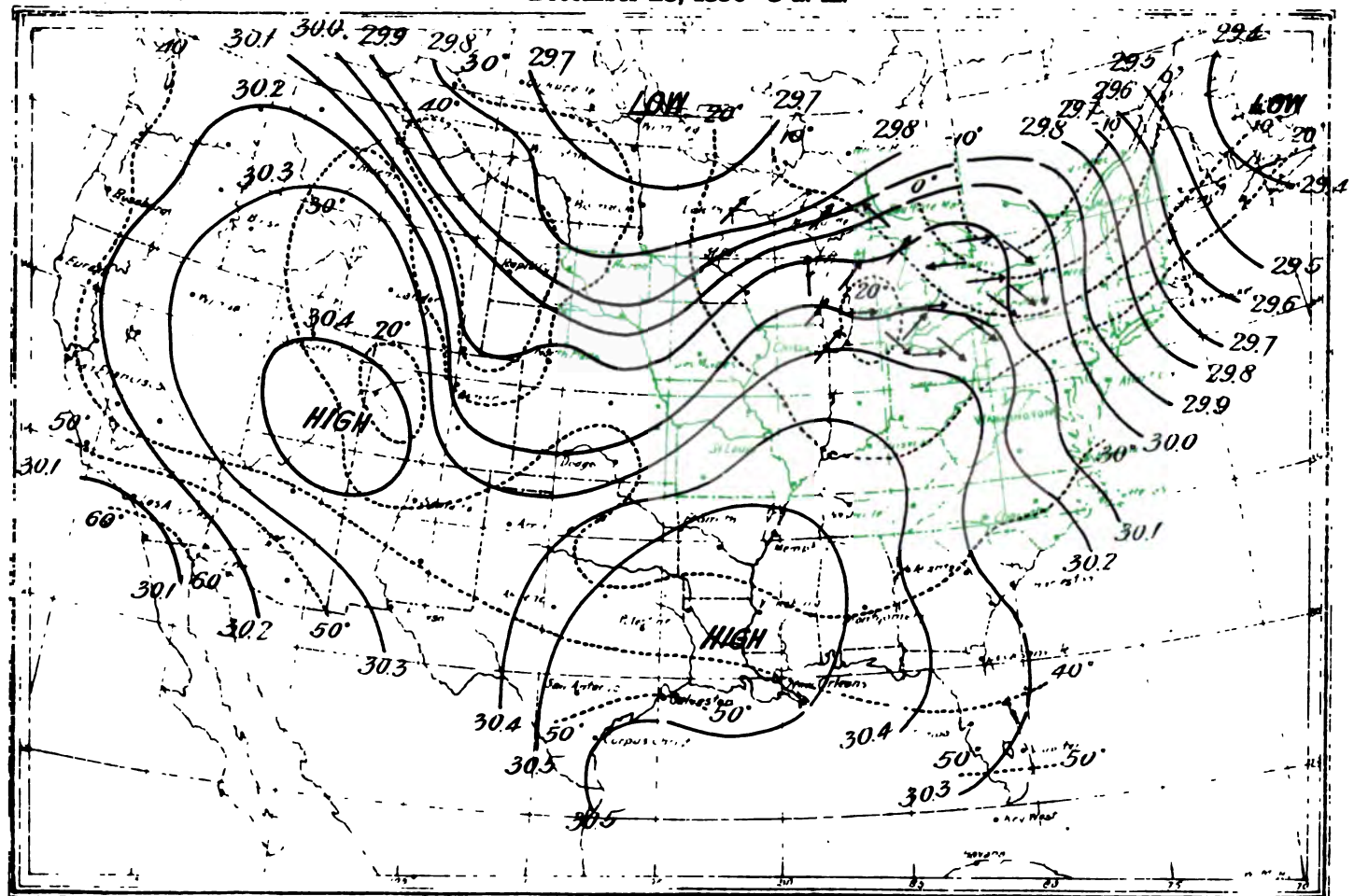


Chart DCCCCX.

December 28, 1890—8 a. m.



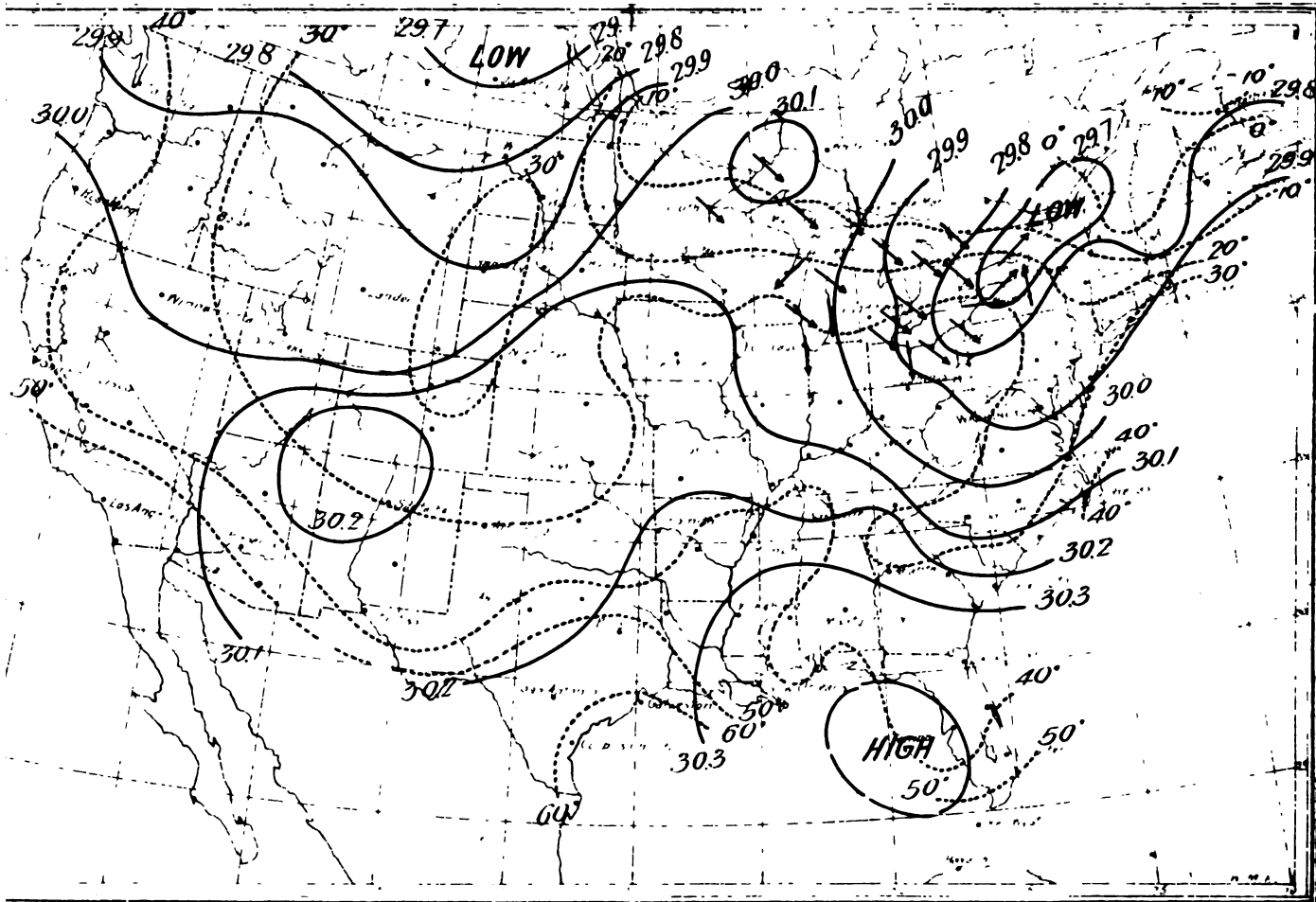
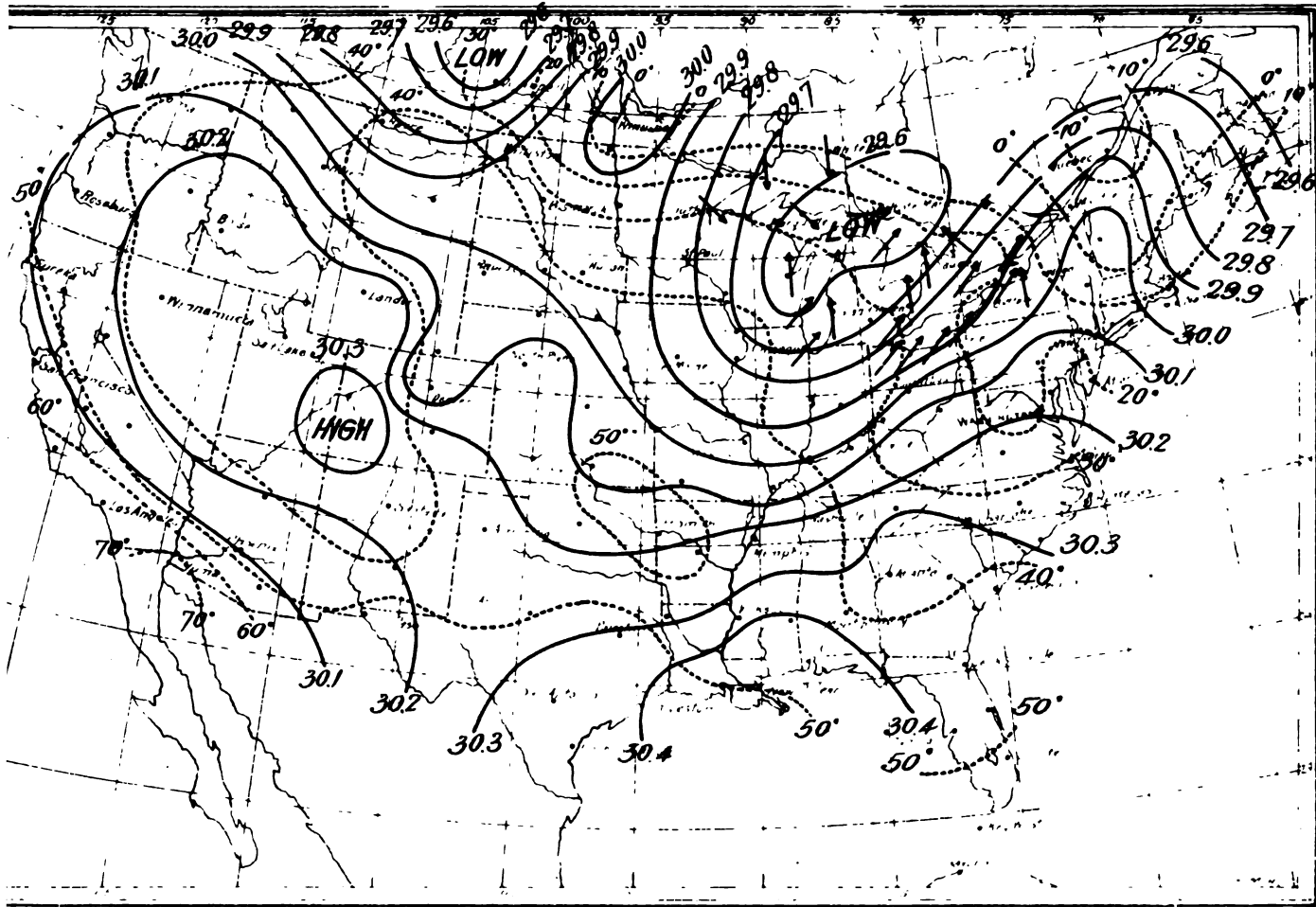


Chart DCCCCXIII.

December 3, 1891—8 a. m.

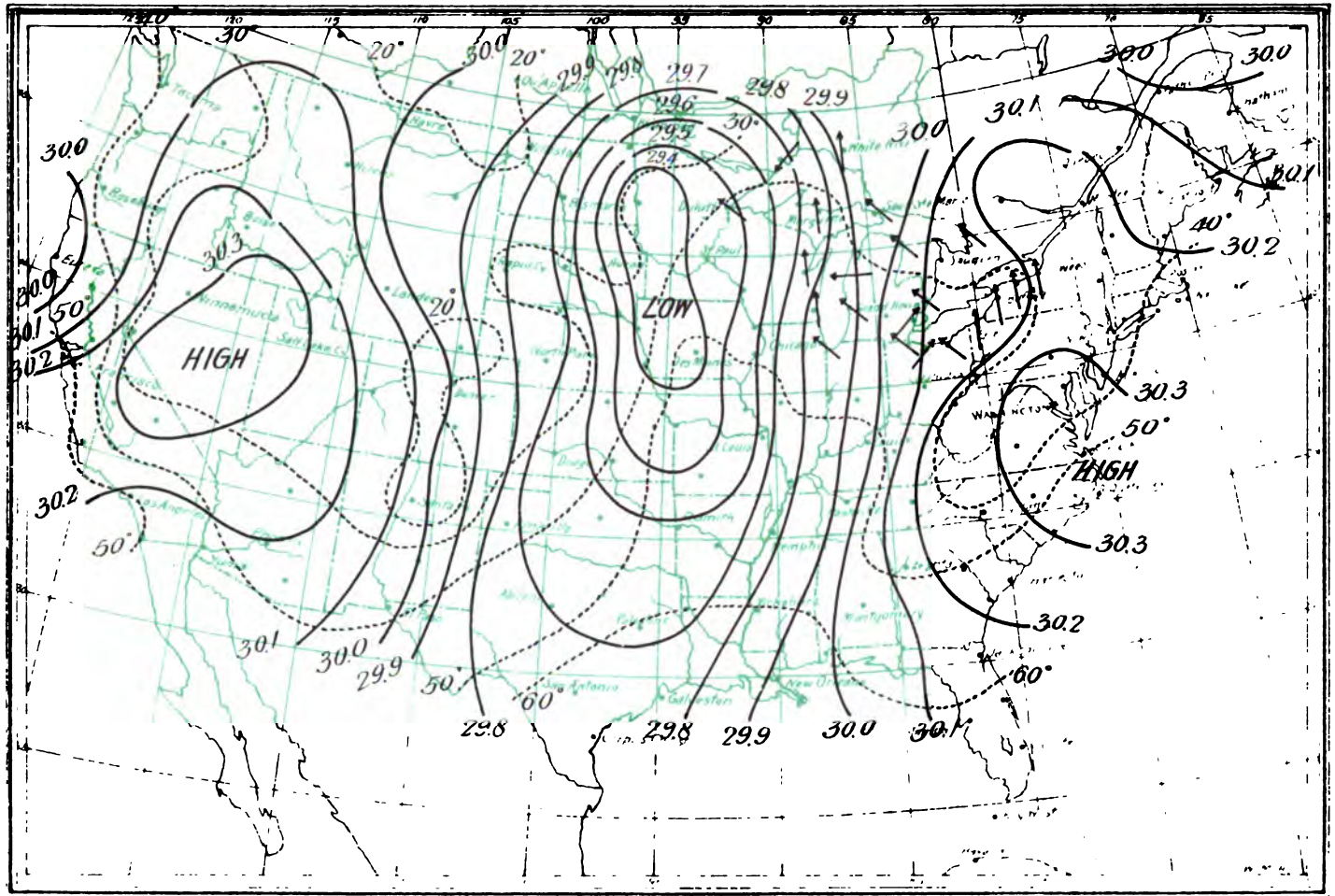


Chart DCCCCXIV.

December 3, 1891—8 p. m.

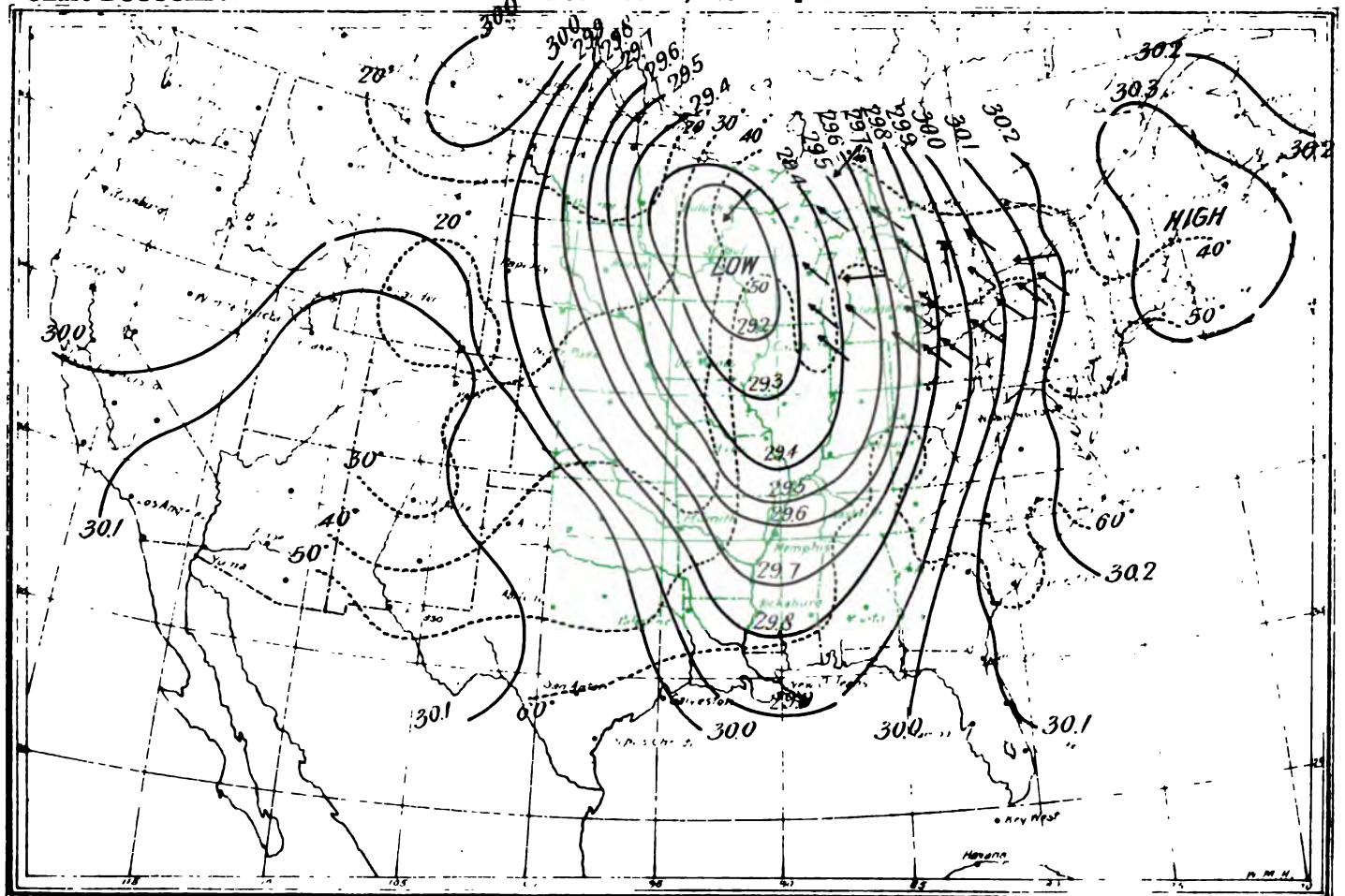


Chart D0000XV.

December 4, 1891—8 a. m.

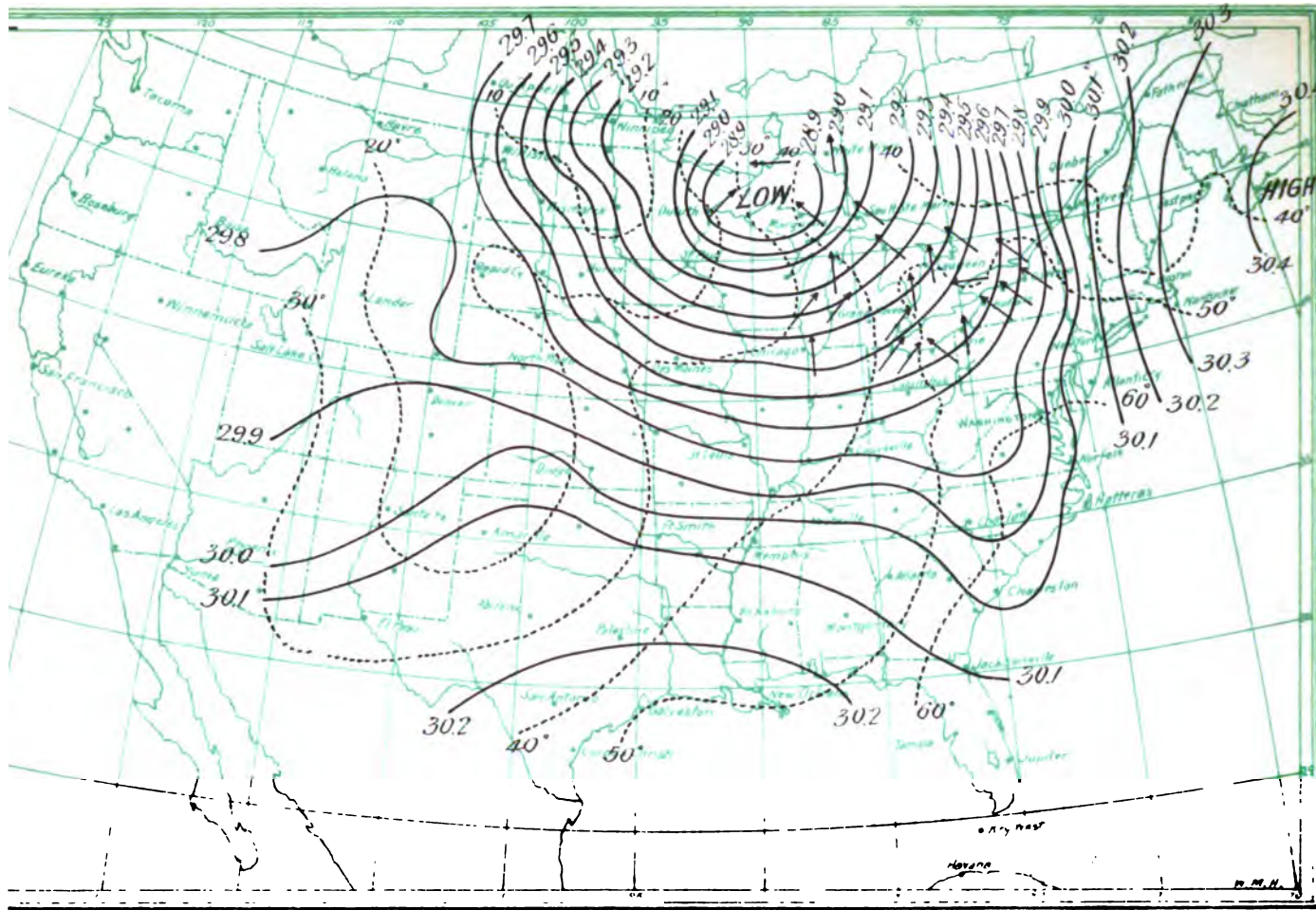


Chart D0000XVI.

December 4, 1891—8 p. m.

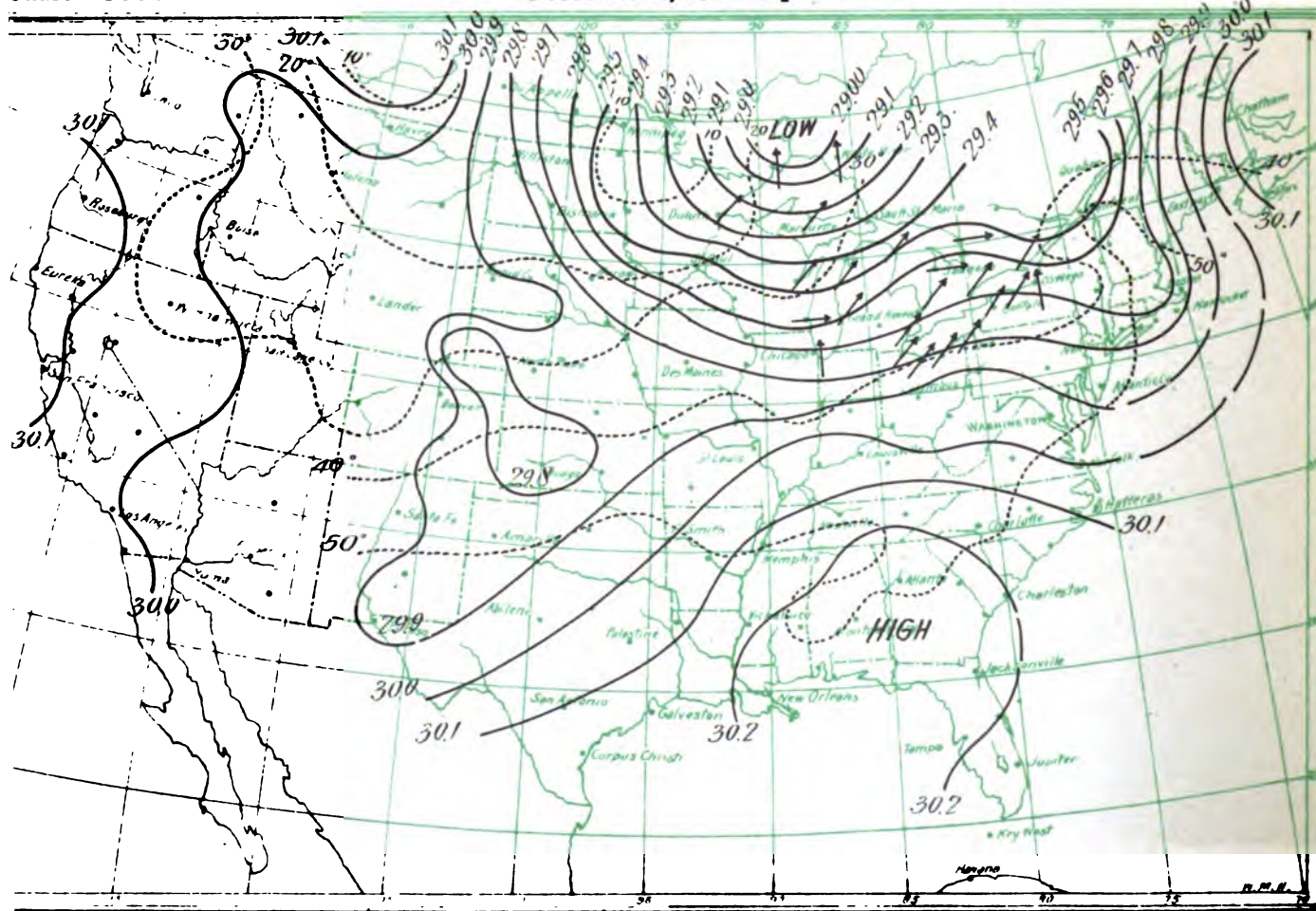


Chart D0000XVII.

December 7, 1892—8 a. m.

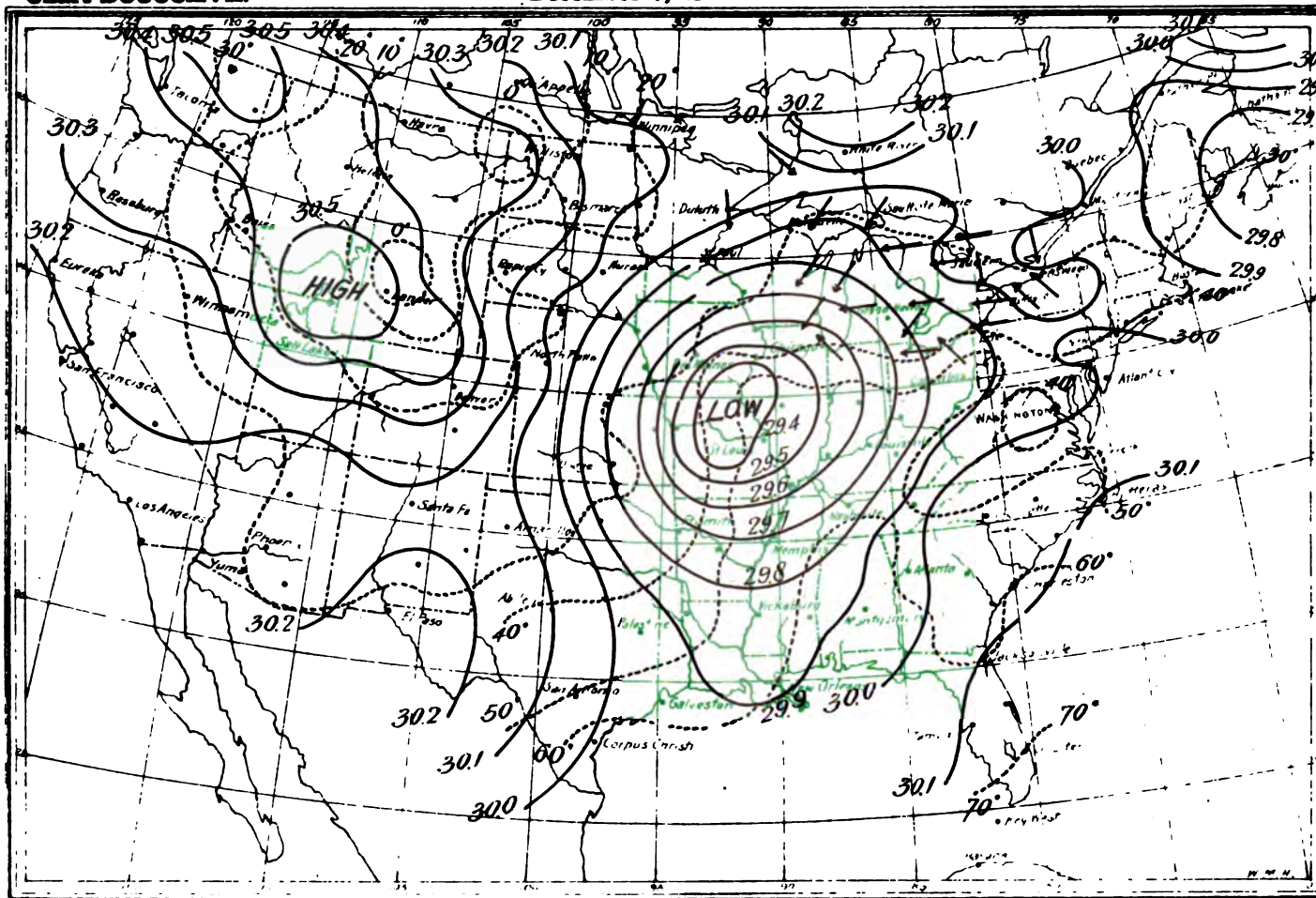


Chart D0000XVIII.

December 7, 1892—8 p. m.

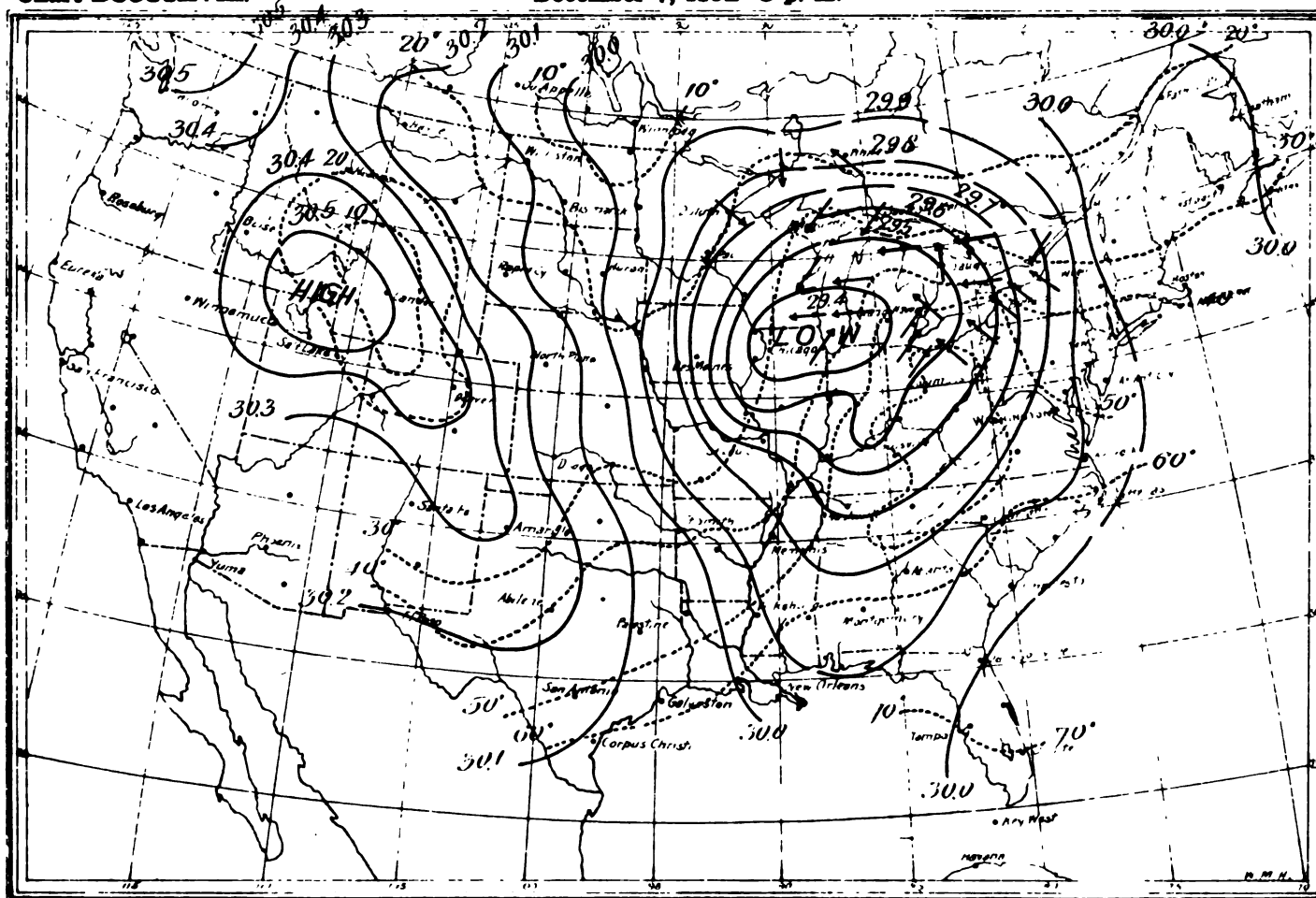


Chart D0000XIX.

December 8, 1892—8 a. m.

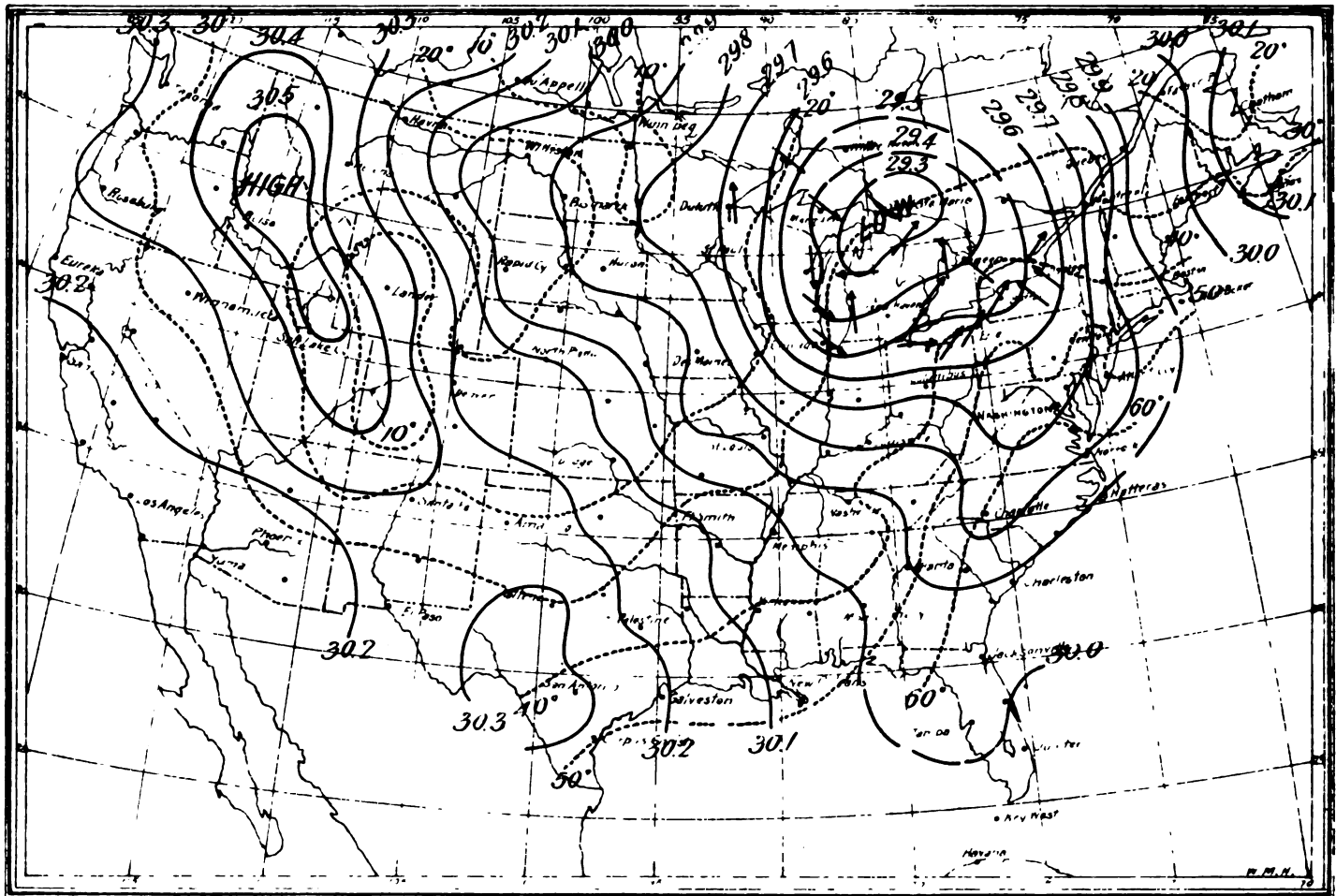


Chart D0000XX.

December 8, 1892—8 p. m.

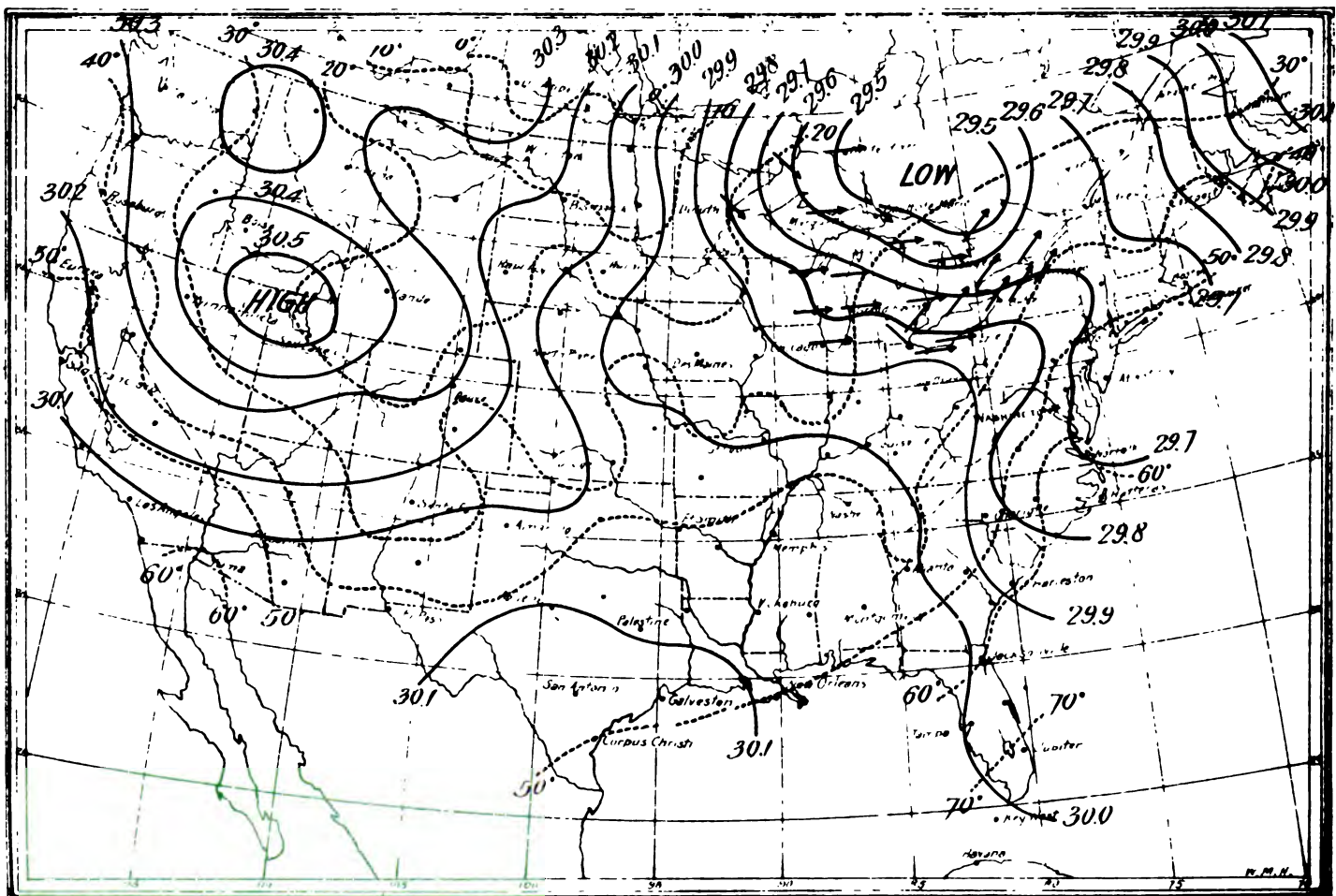


Chart DCCCCXXI.

December 12, 1892—8 a. m.

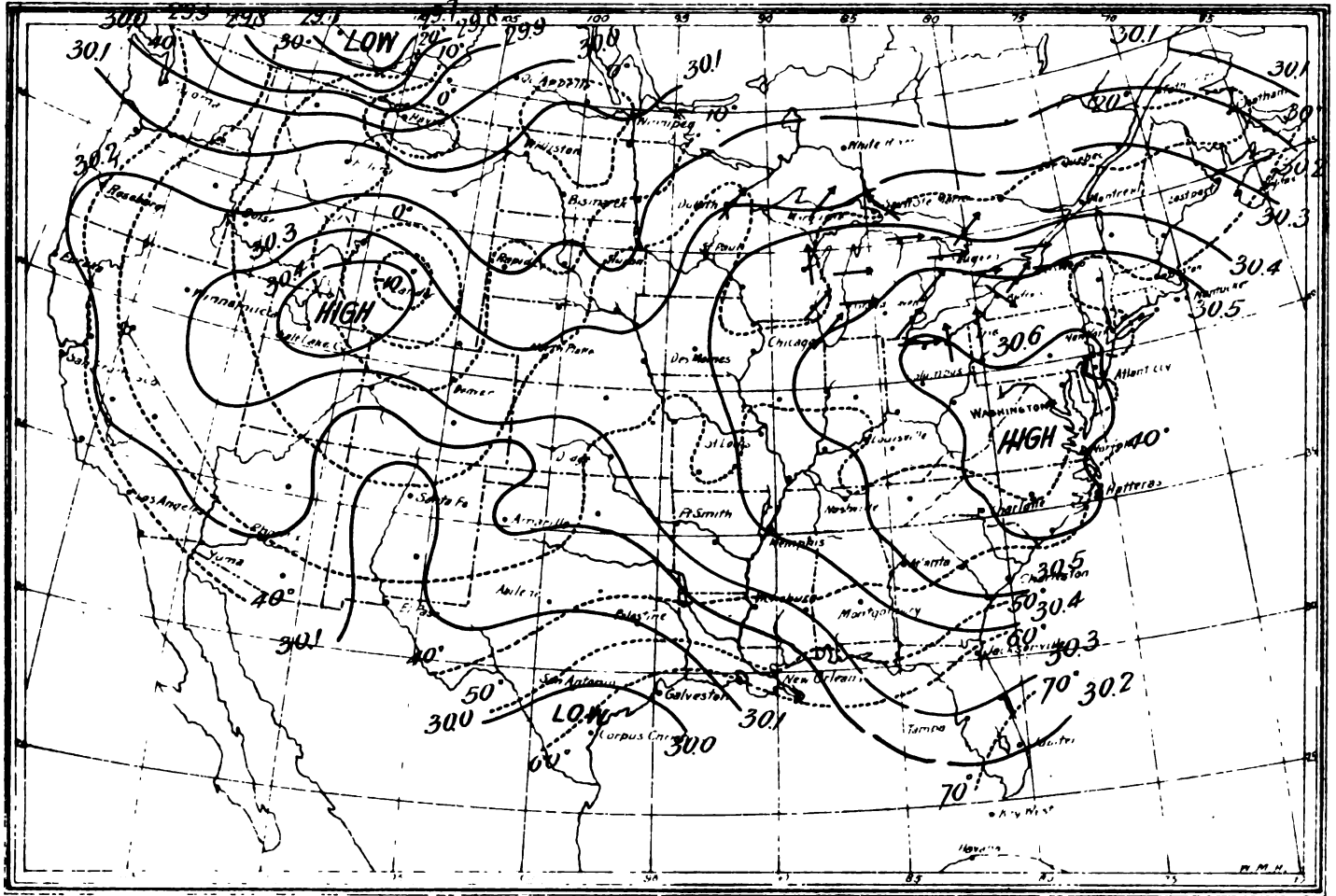


Chart DCCCCXXII.

December 12, 1892—8 p. m.

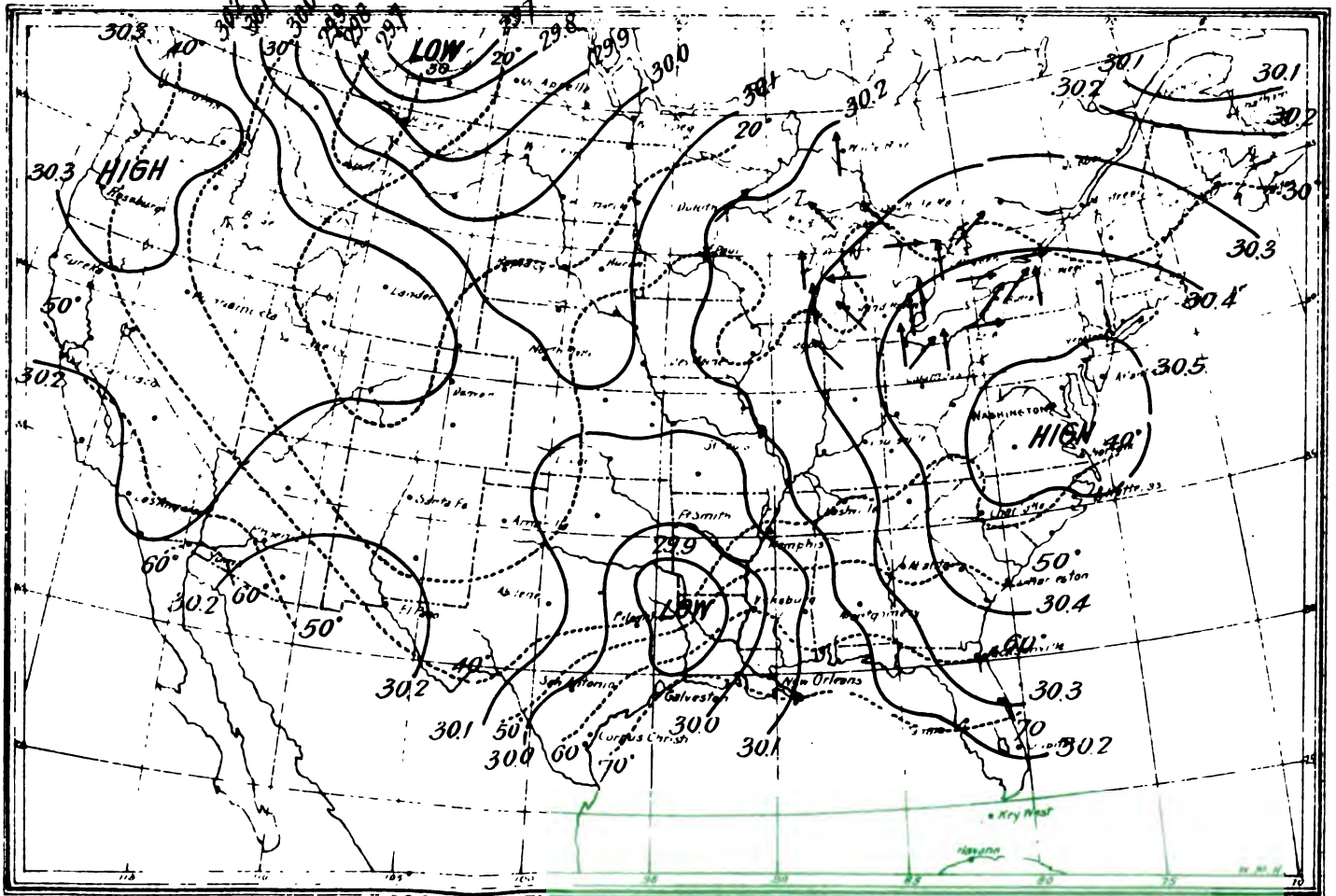


Chart DCCCCXXIII.

December 13, 1892—8 a. m.

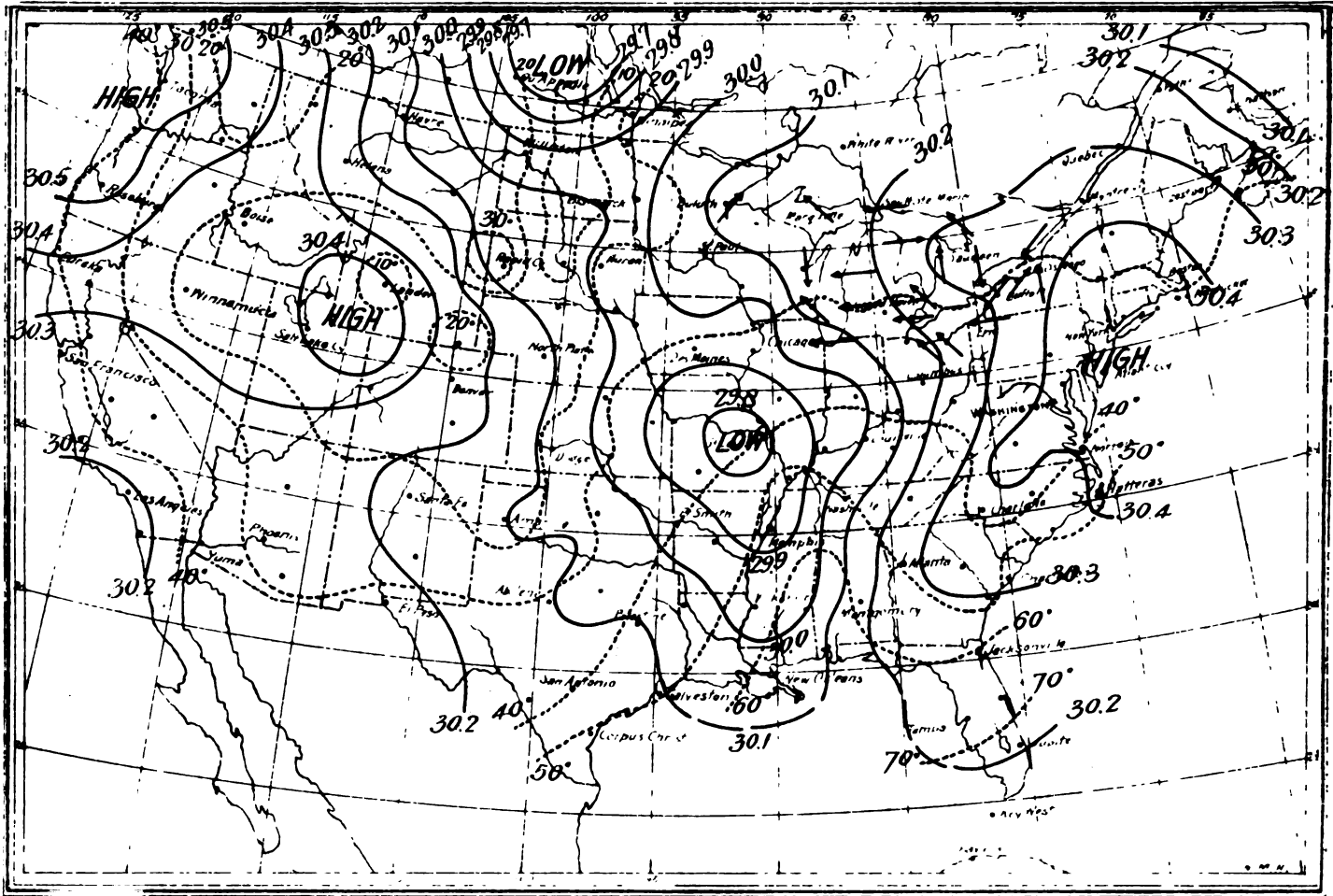


Chart DCCCCXXIV.

December 13, 1892—8 p. m.

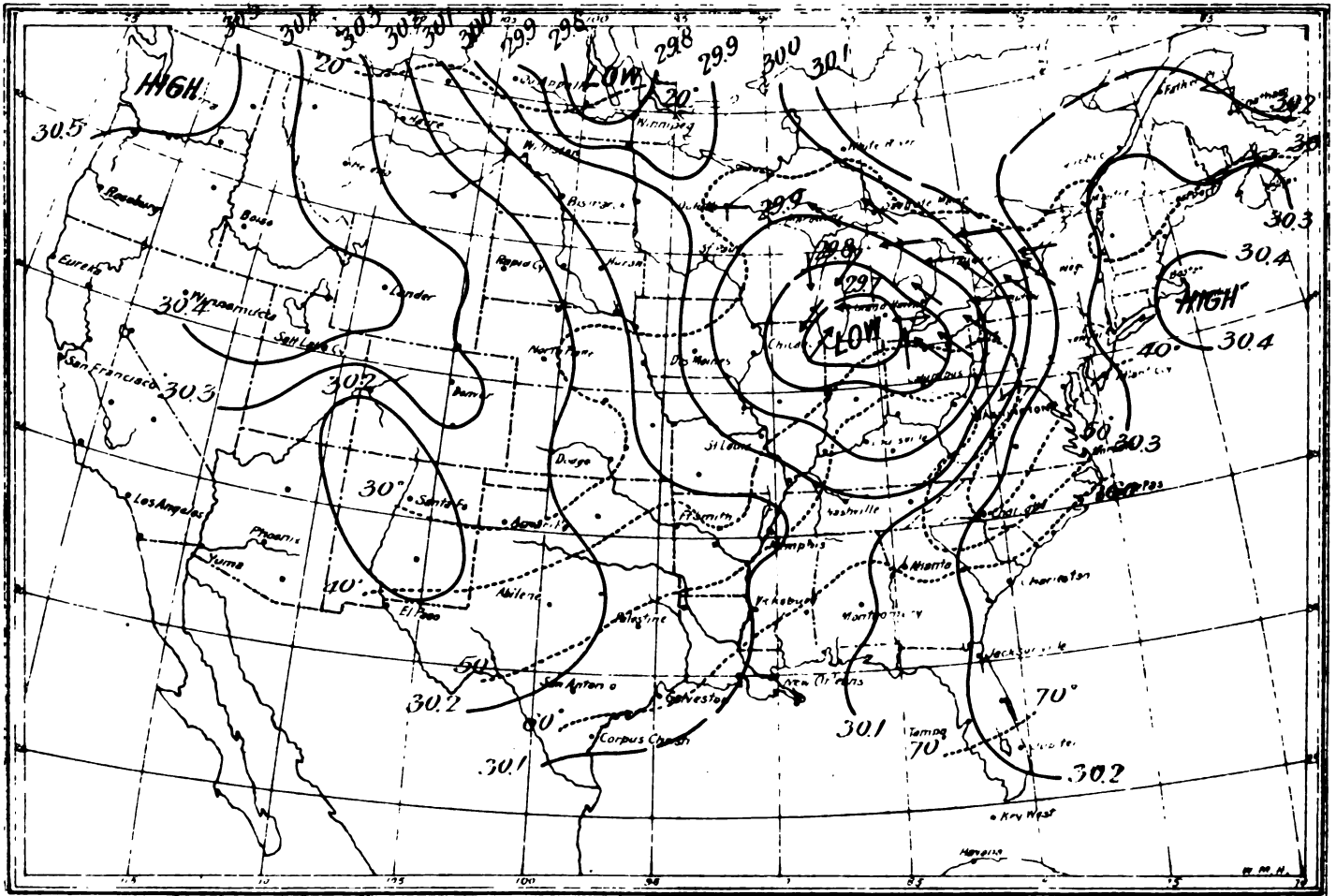


Chart D0000XXV.

December 14, 1893—8 a. m.

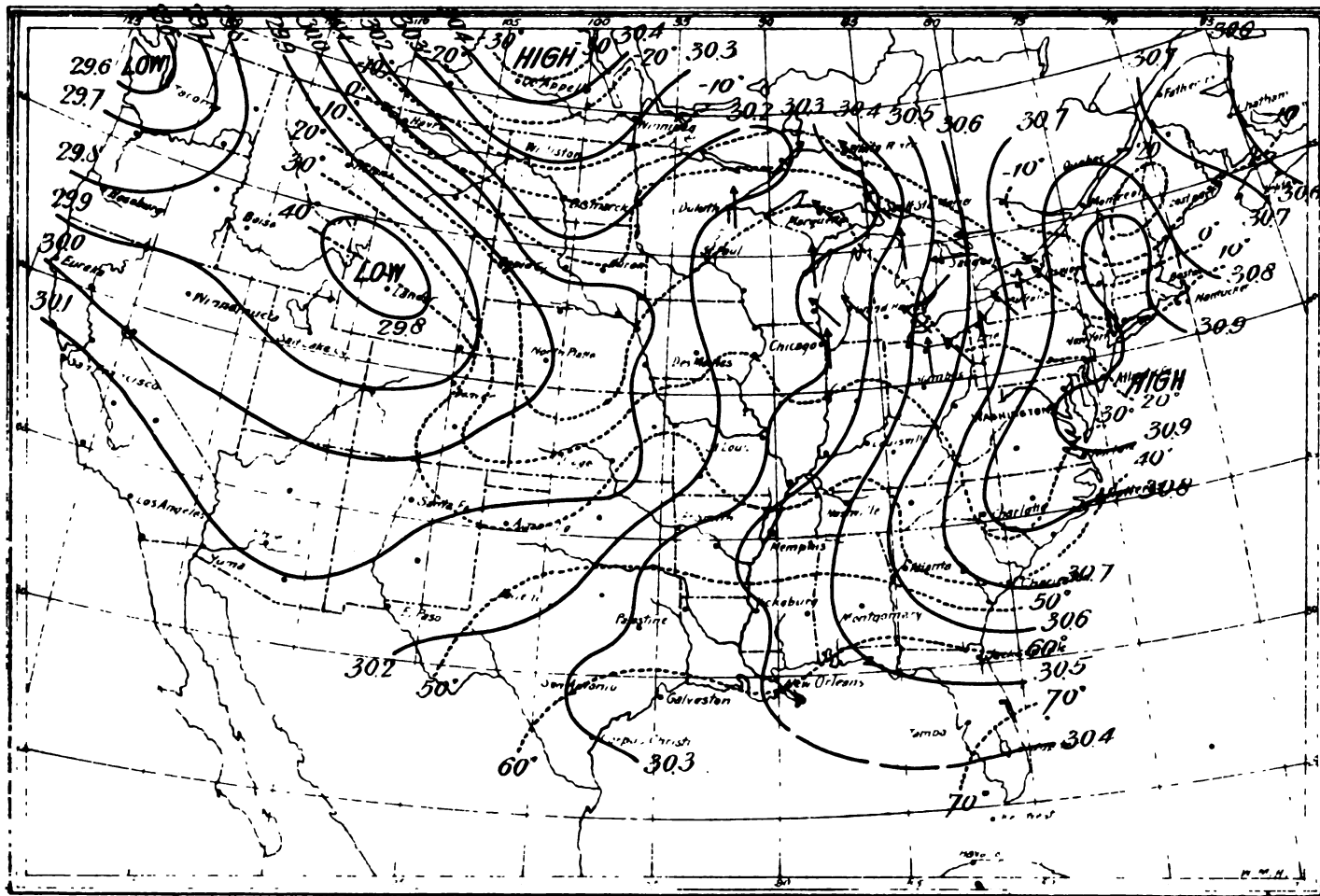


Chart D0000XXVI.

December 14, 1893—8 p. m.

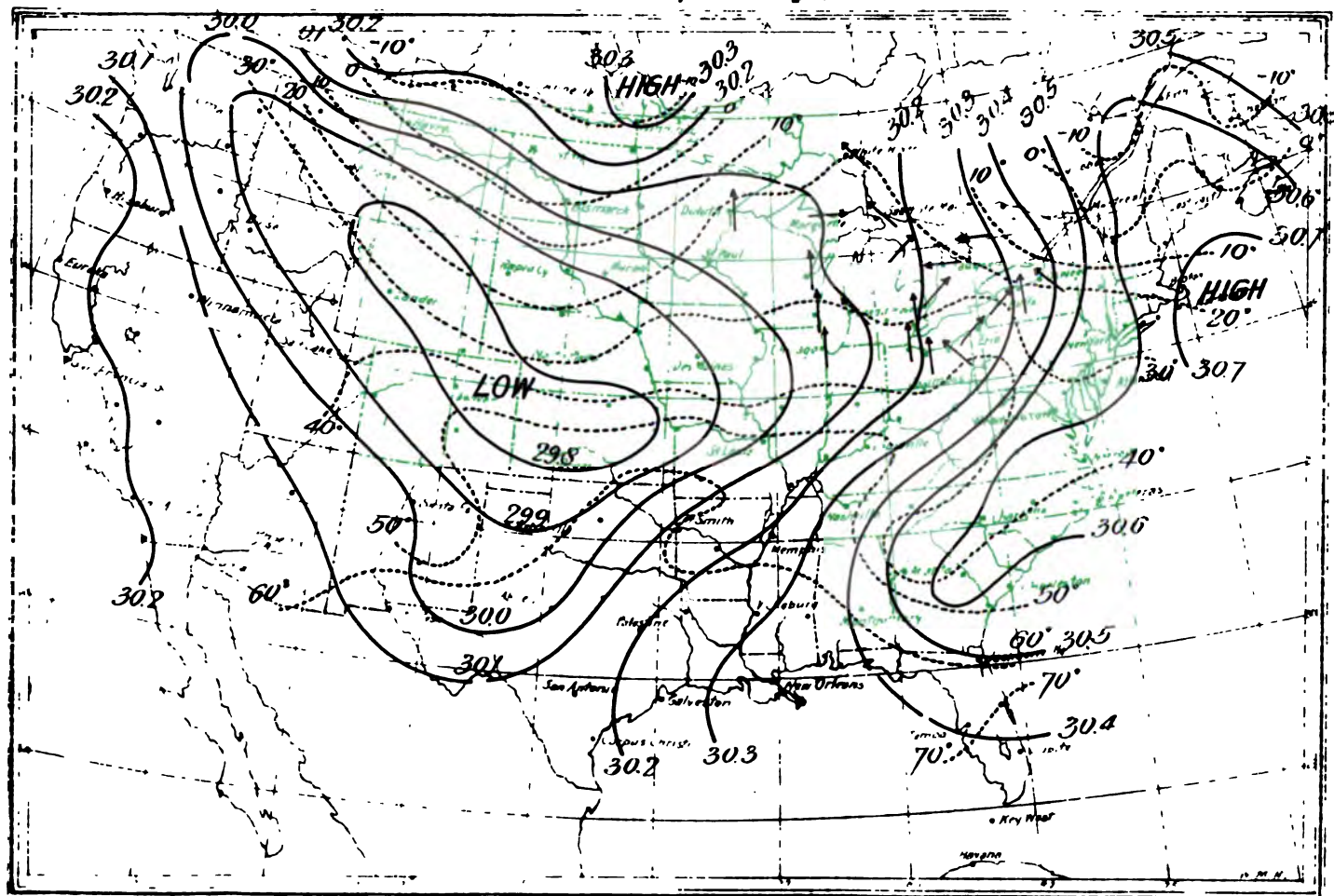


Chart D0000XXVII.

December 15, 1893—8 a. m.

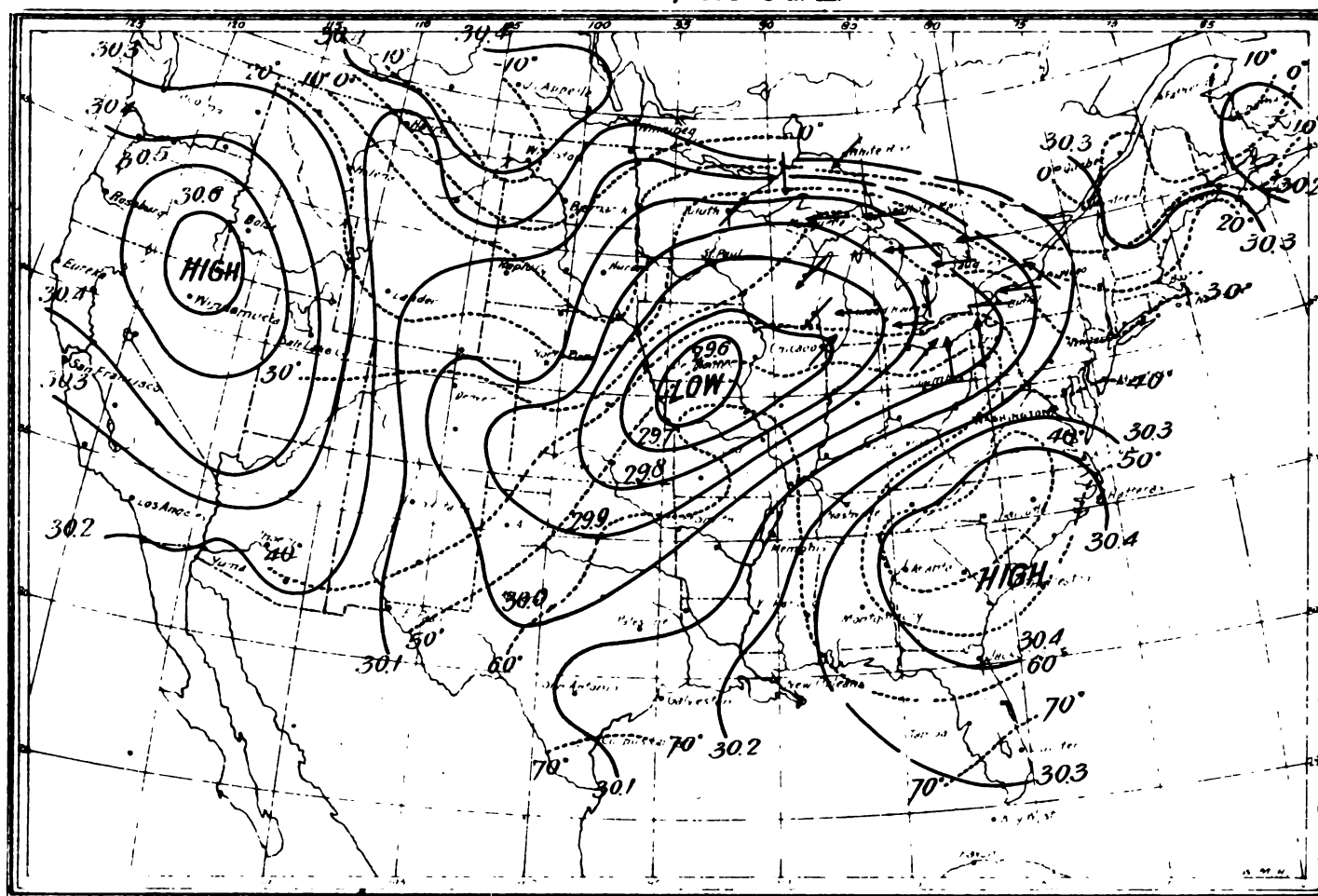


Chart D0000XXVIII.

December 15, 1893—8 p. m.

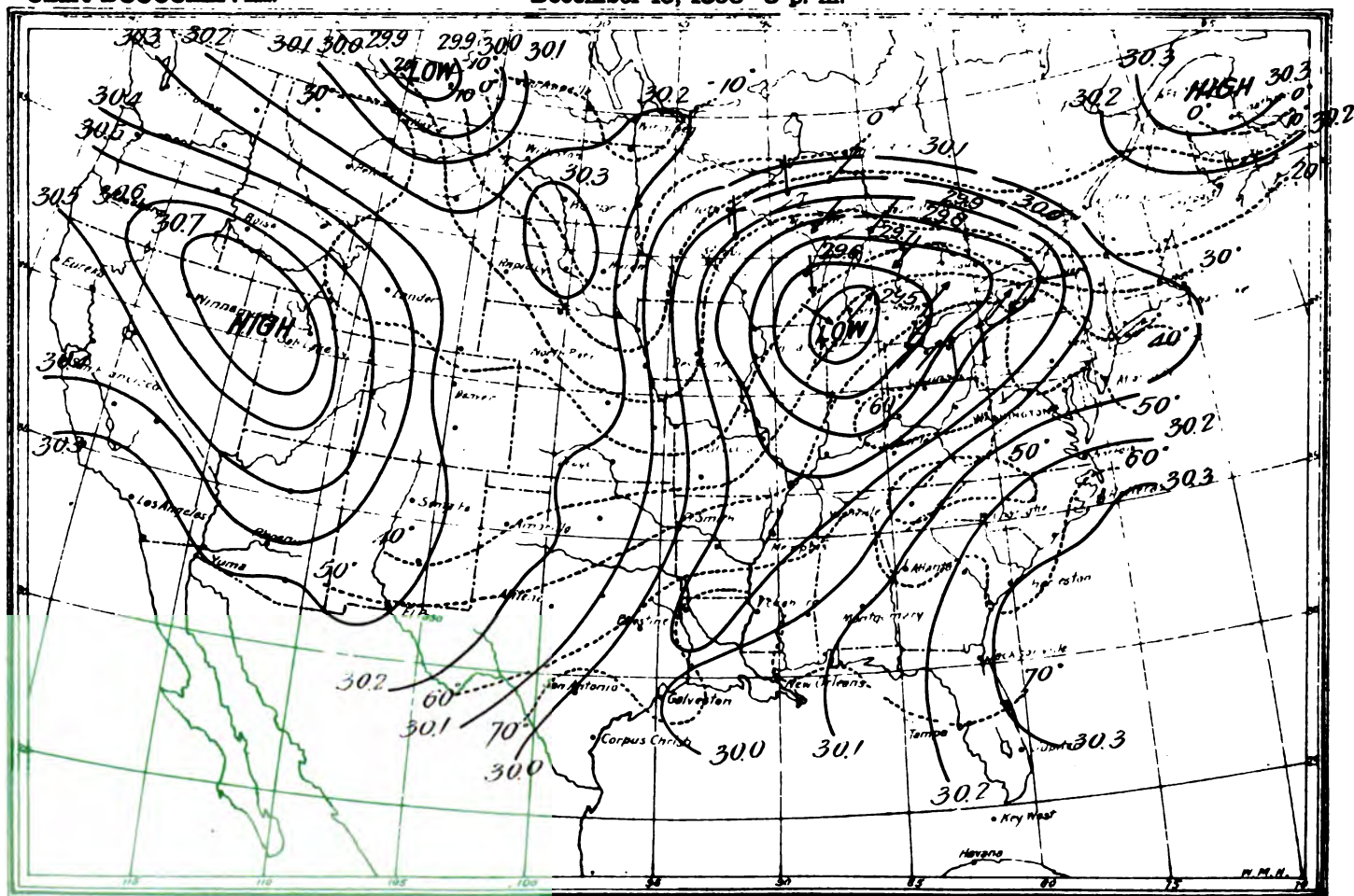


Chart D0000XXIX.

December 9, 1894—8 a. m.

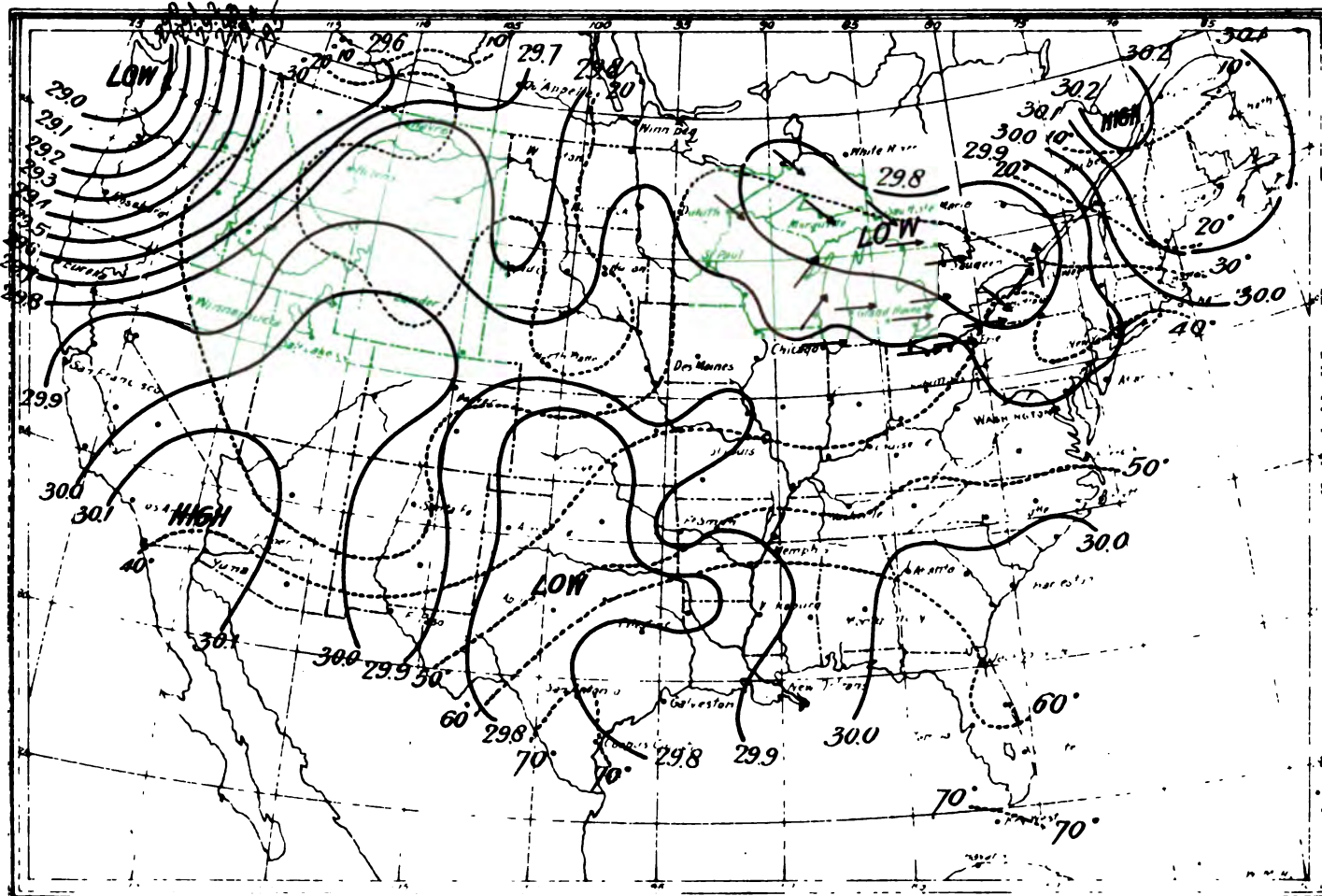


Chart D0000XXX.

December 9, 1894—8 p. m.

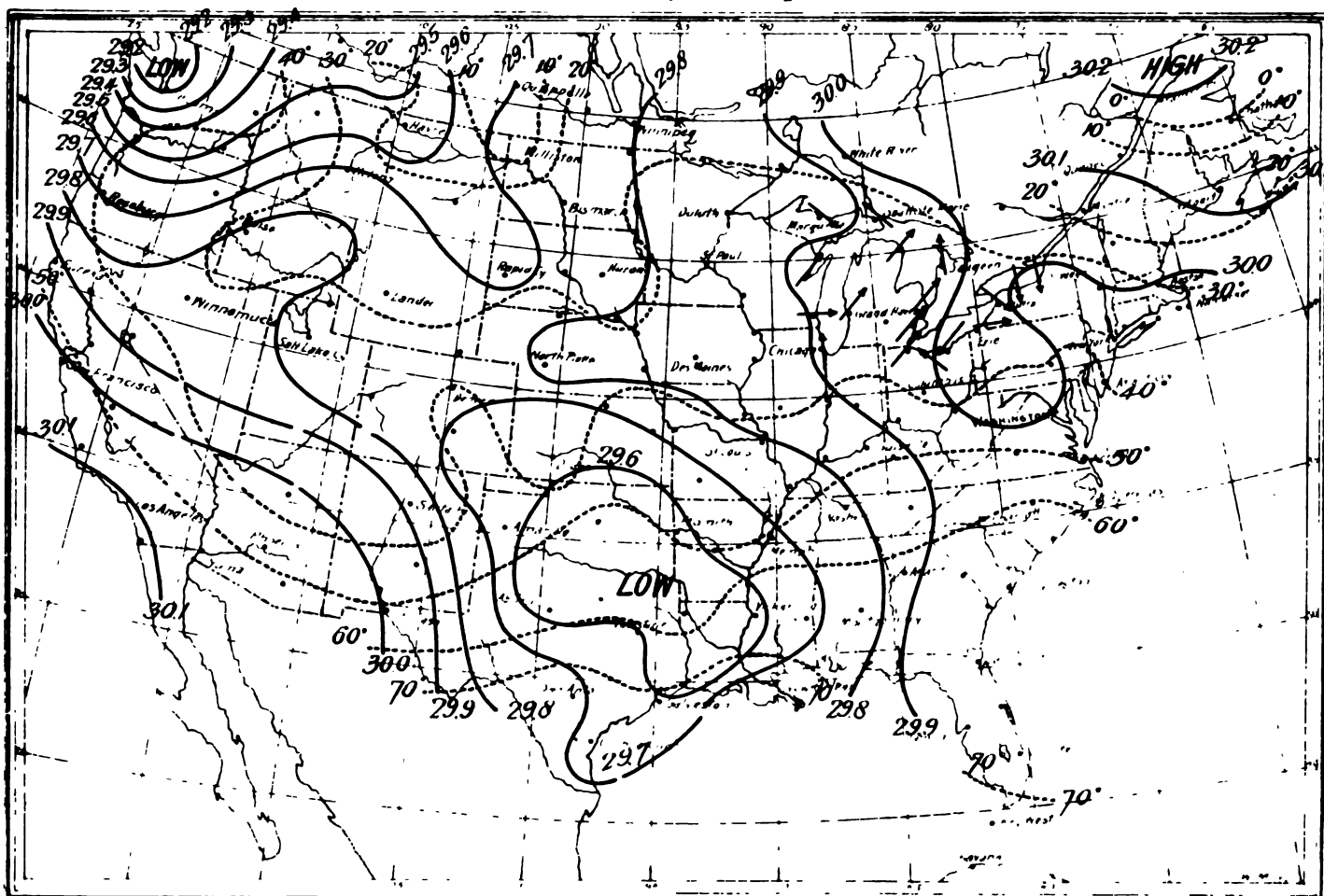


Chart DCCCCXXI.

December 10, 1894—8 a. m.

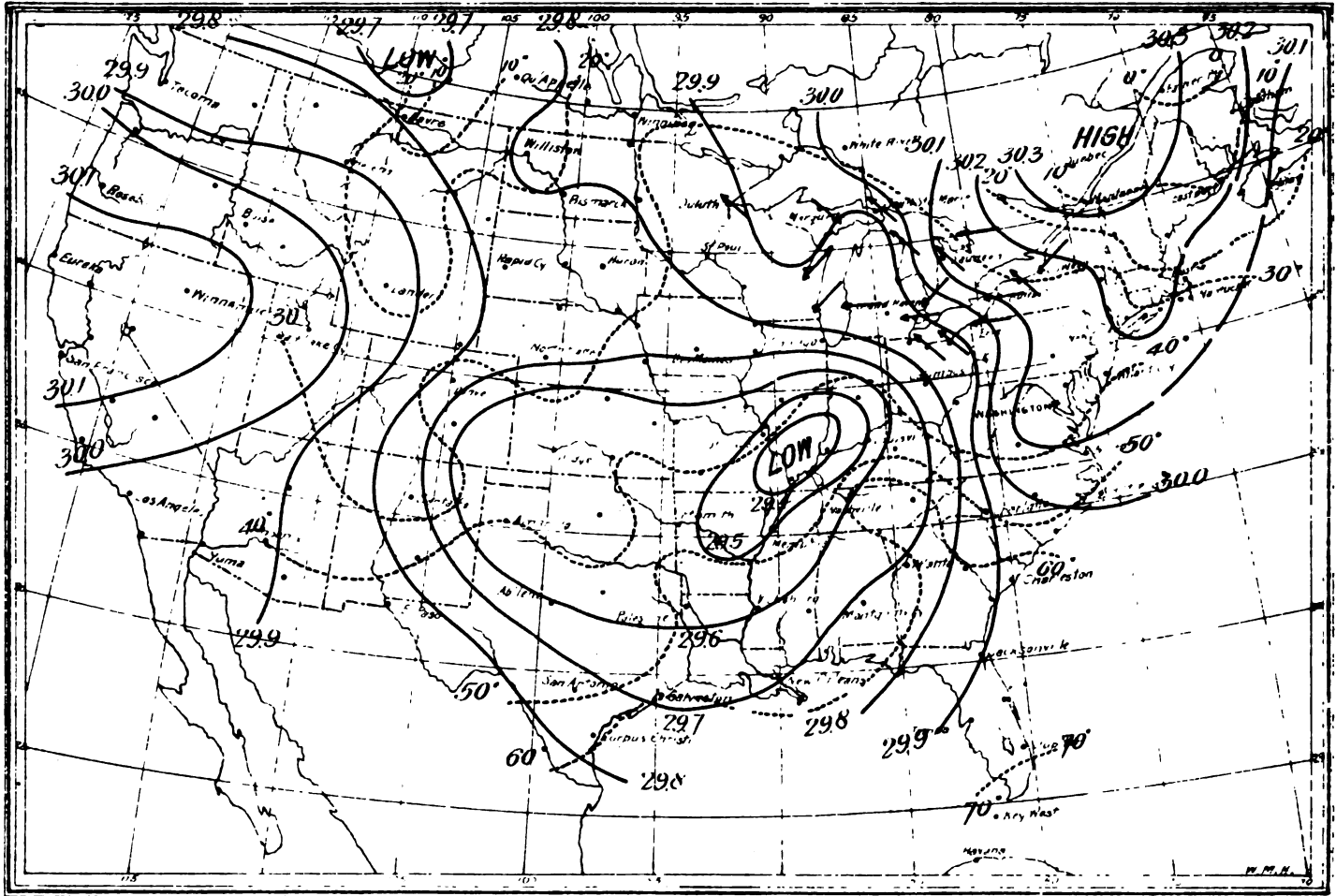


Chart DCCCCXXII.

December 10, 1894—8 p. m.

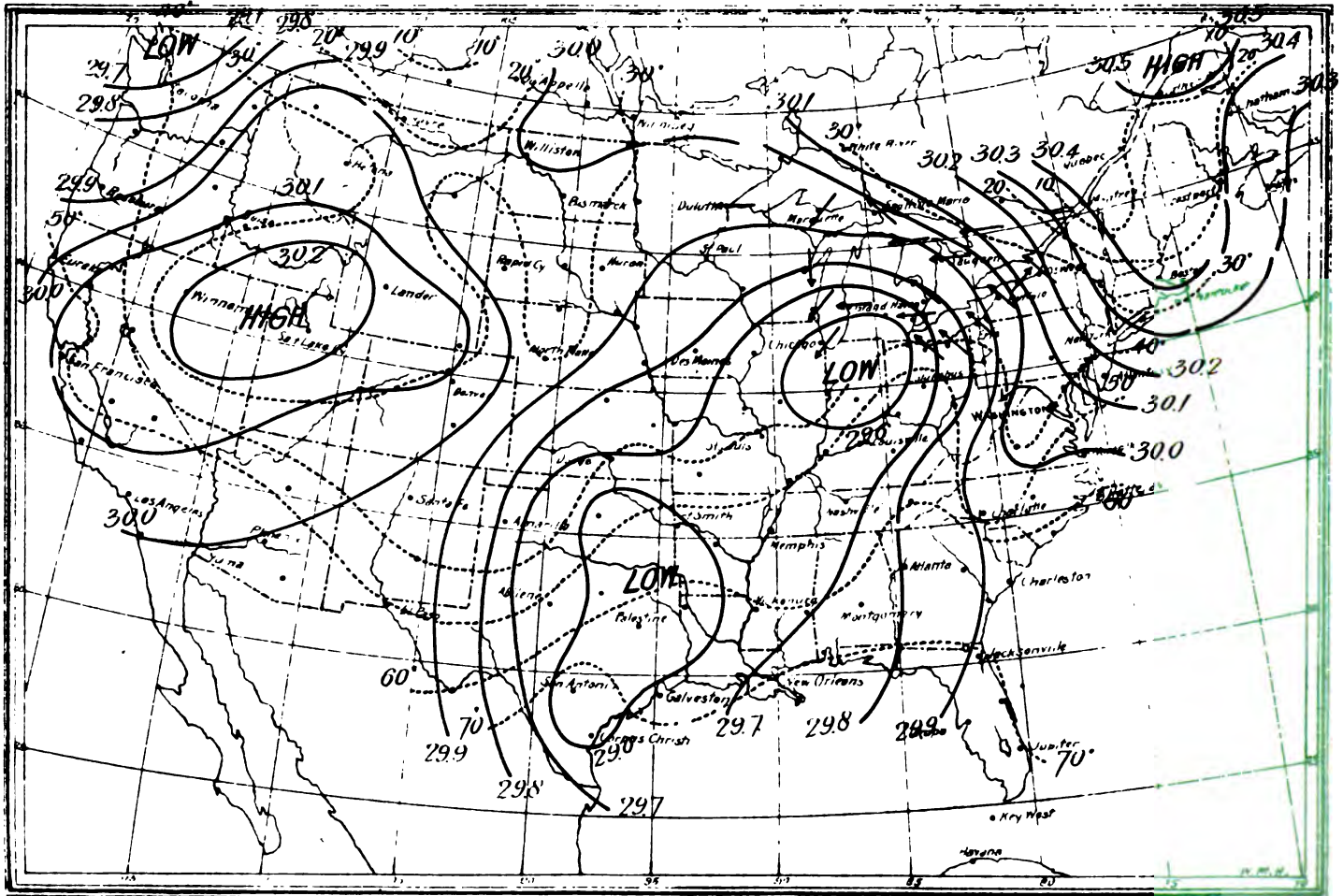


Chart D0000XXXIII.

December 11, 1894—8 a. m.

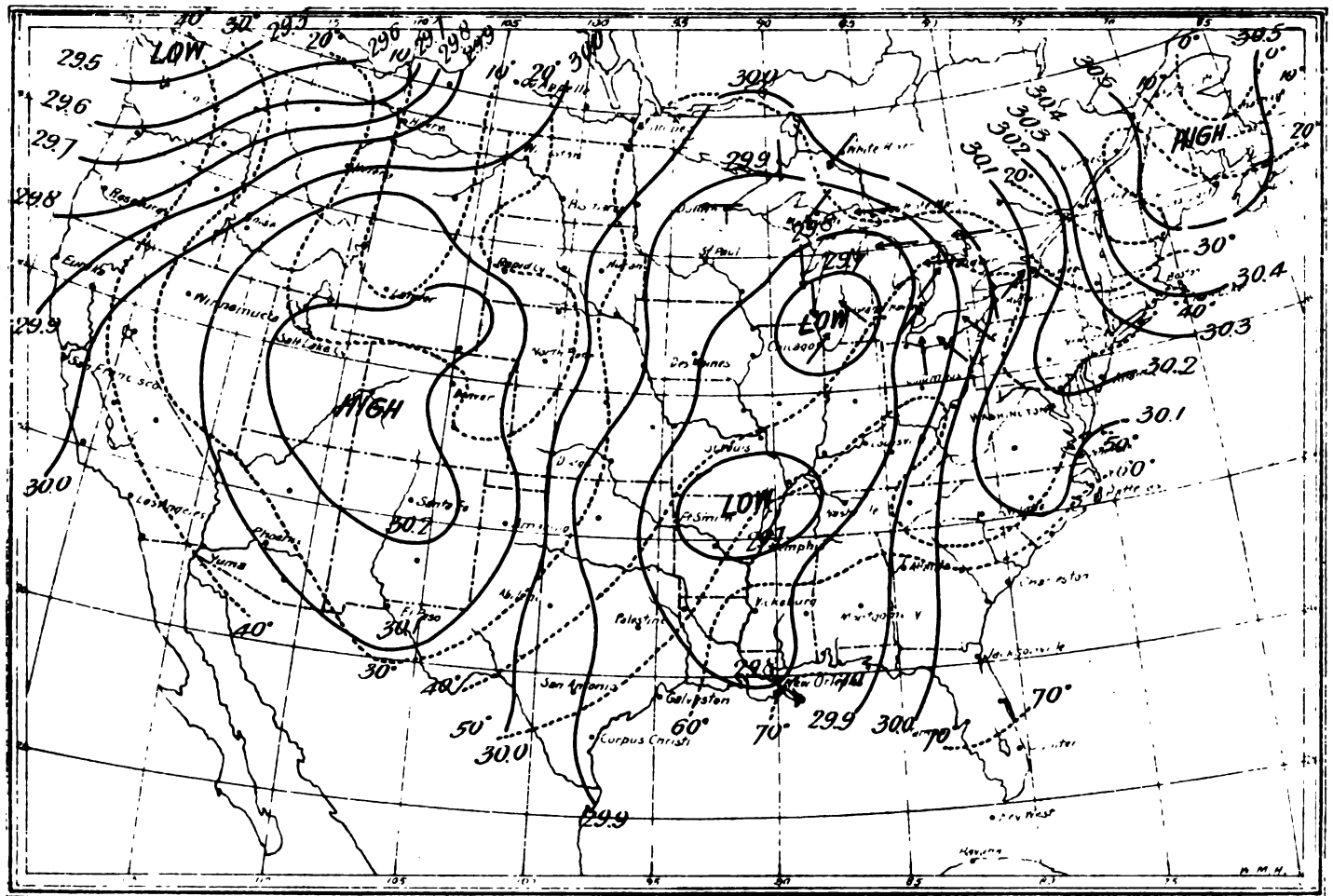


Chart D0000XXXIV.

December 11, 1894—8 p. m.

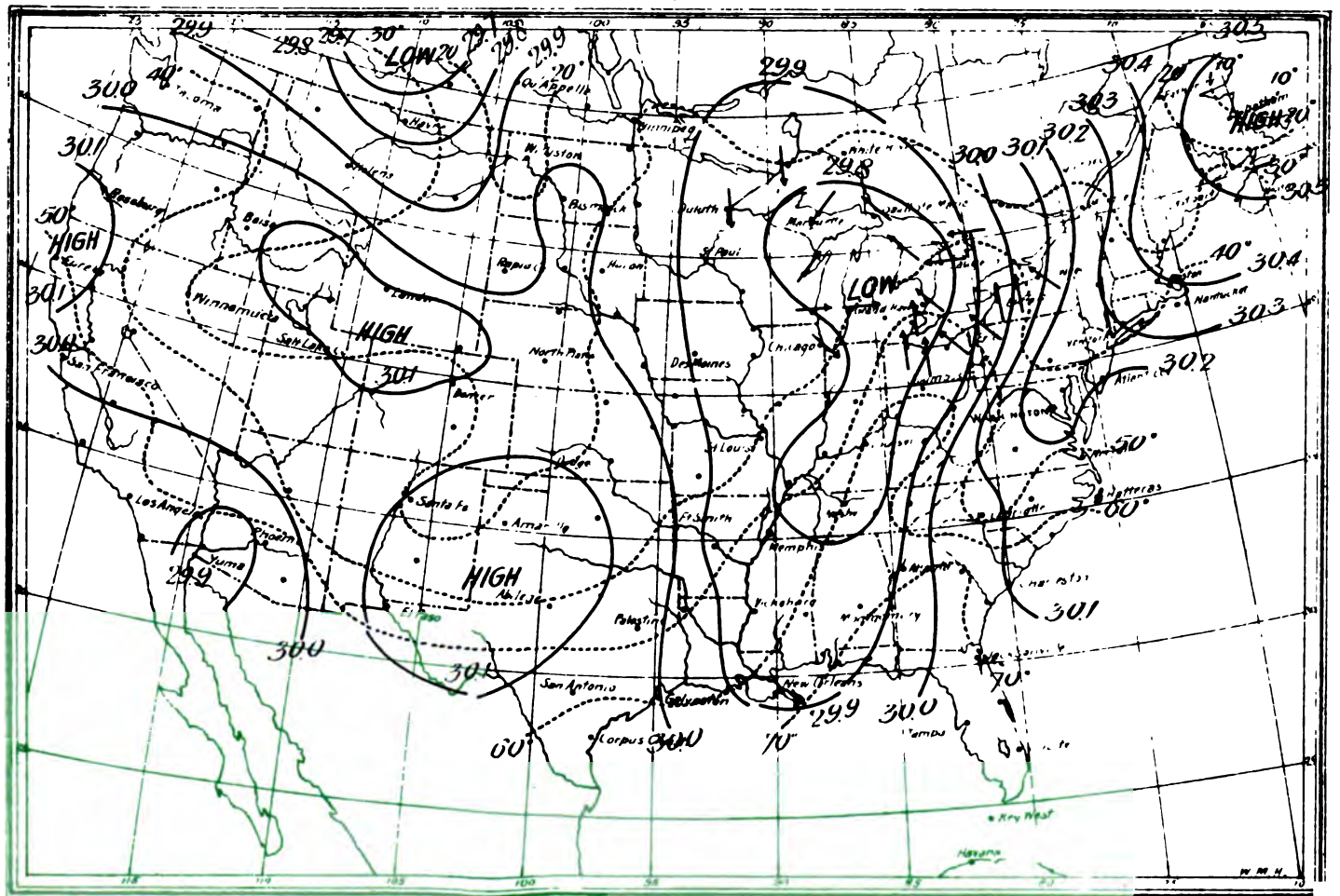


Chart D0000XXXV.

December 12, 1894—8 a. m.

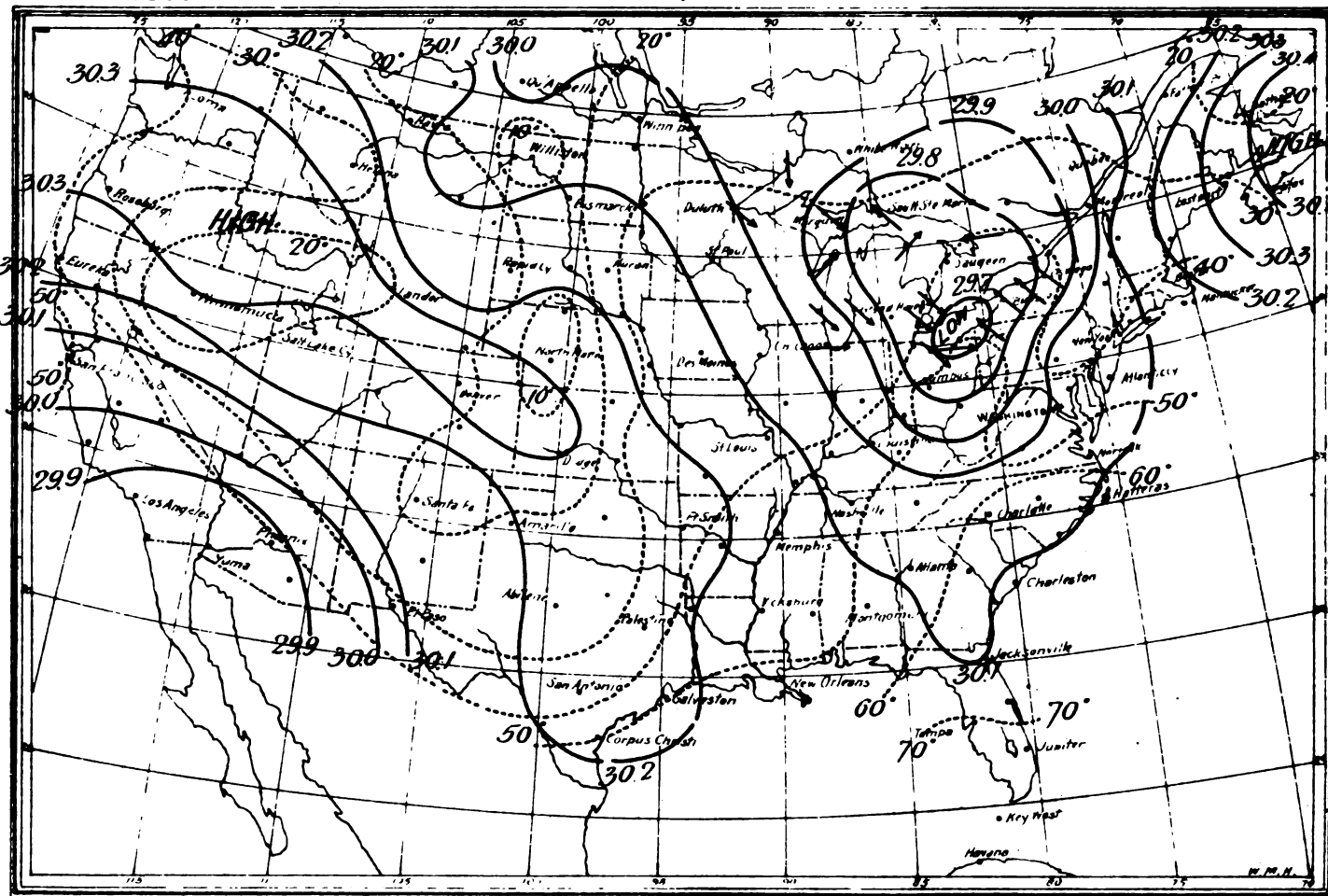


Chart D0000XXXVI.

December 12, 1894—8 p. m.

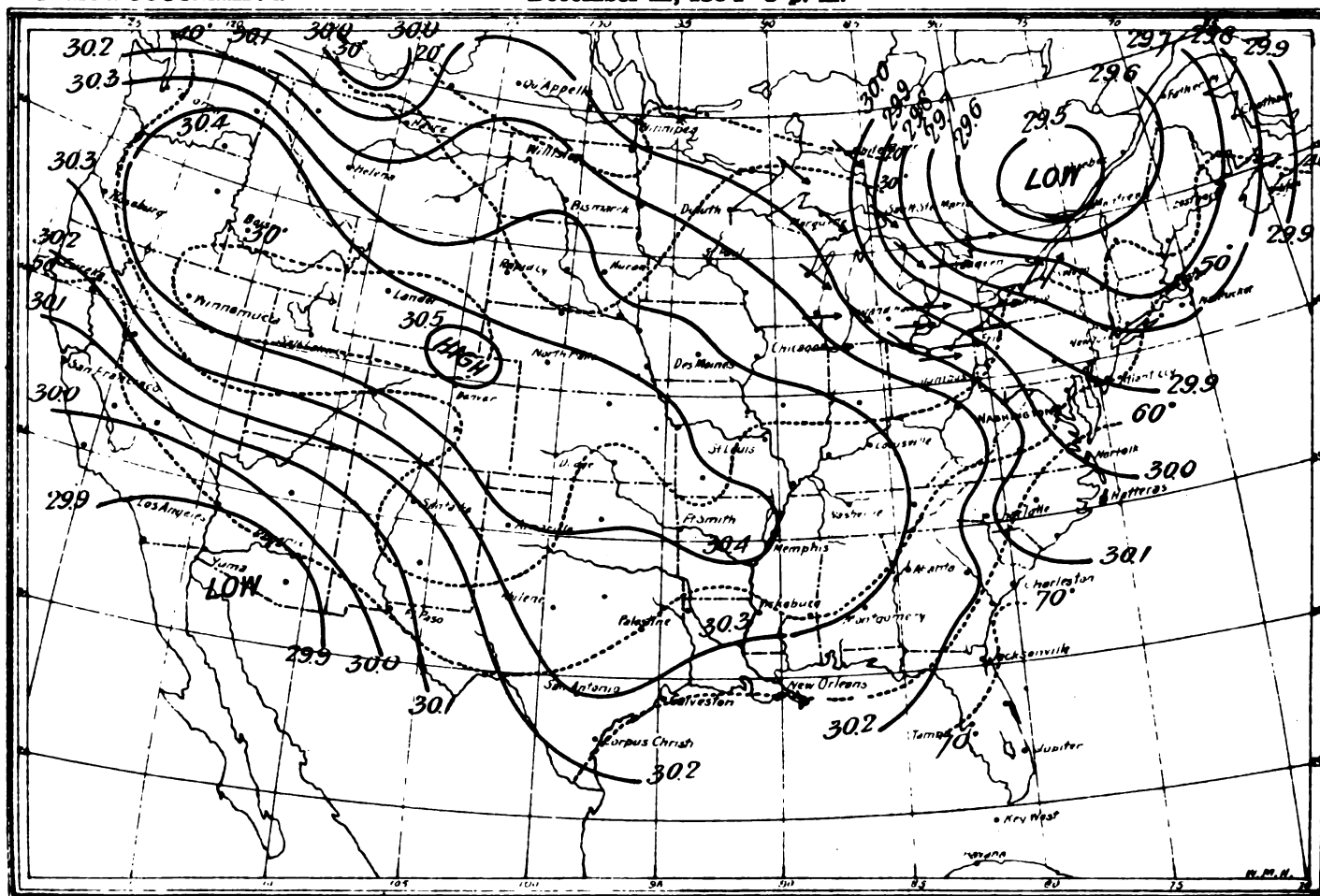


Chart D0000XXXVII.

December 24, 1895—8 a. m.

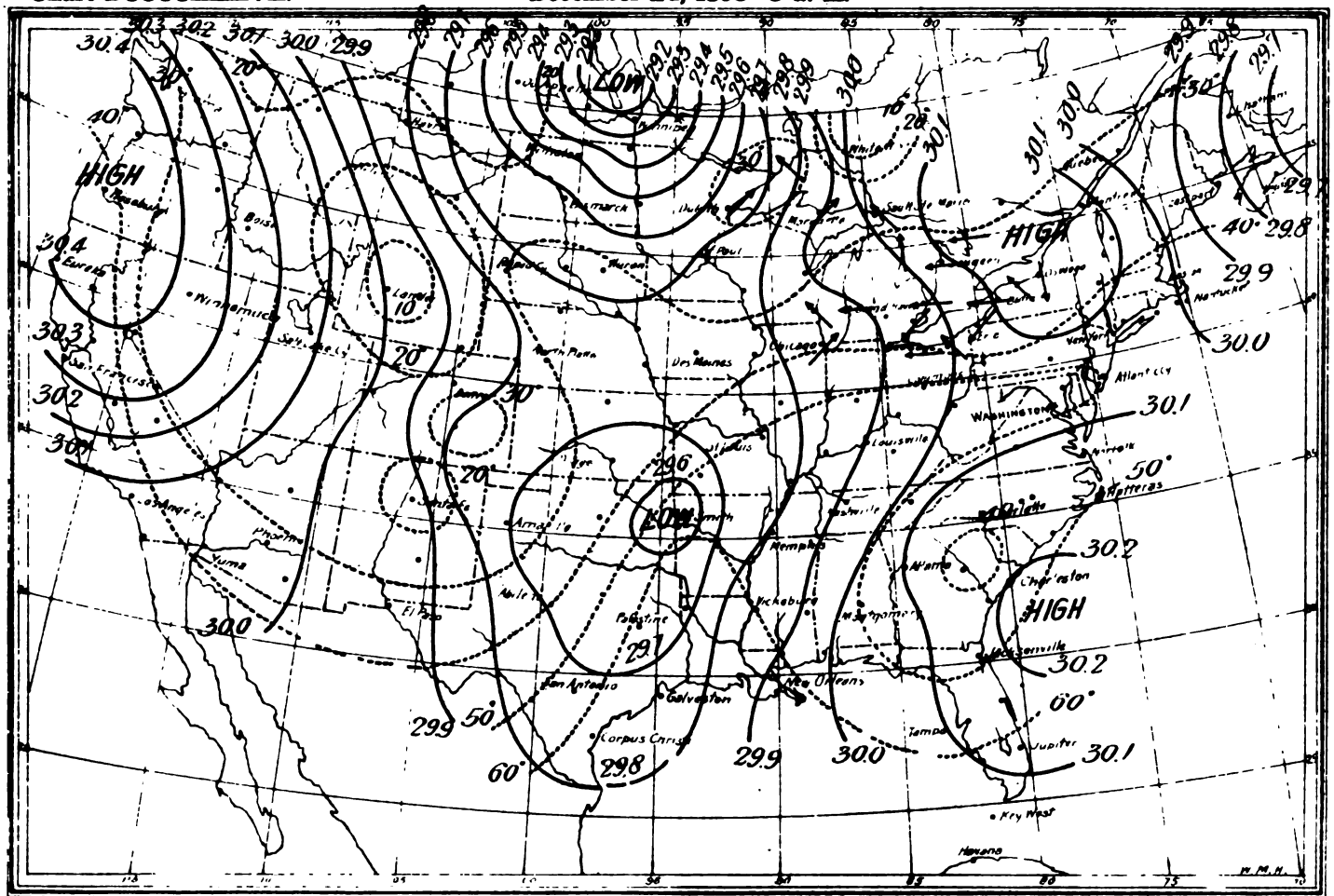


Chart D0000XXXVIII.

December 24, 1895—8 p. m.

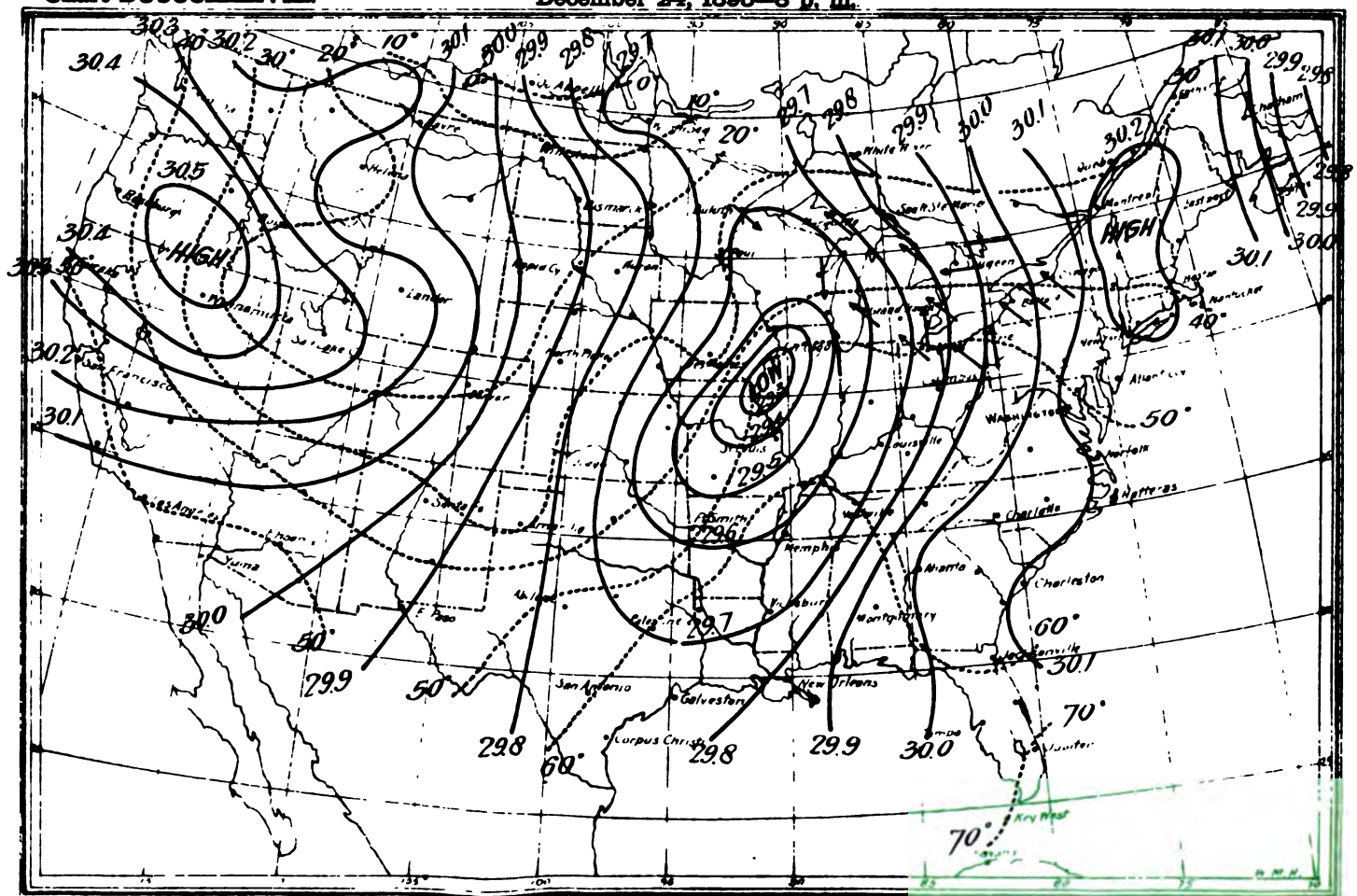


Chart D0000XXXIX

December 25, 1895—8 a. m.

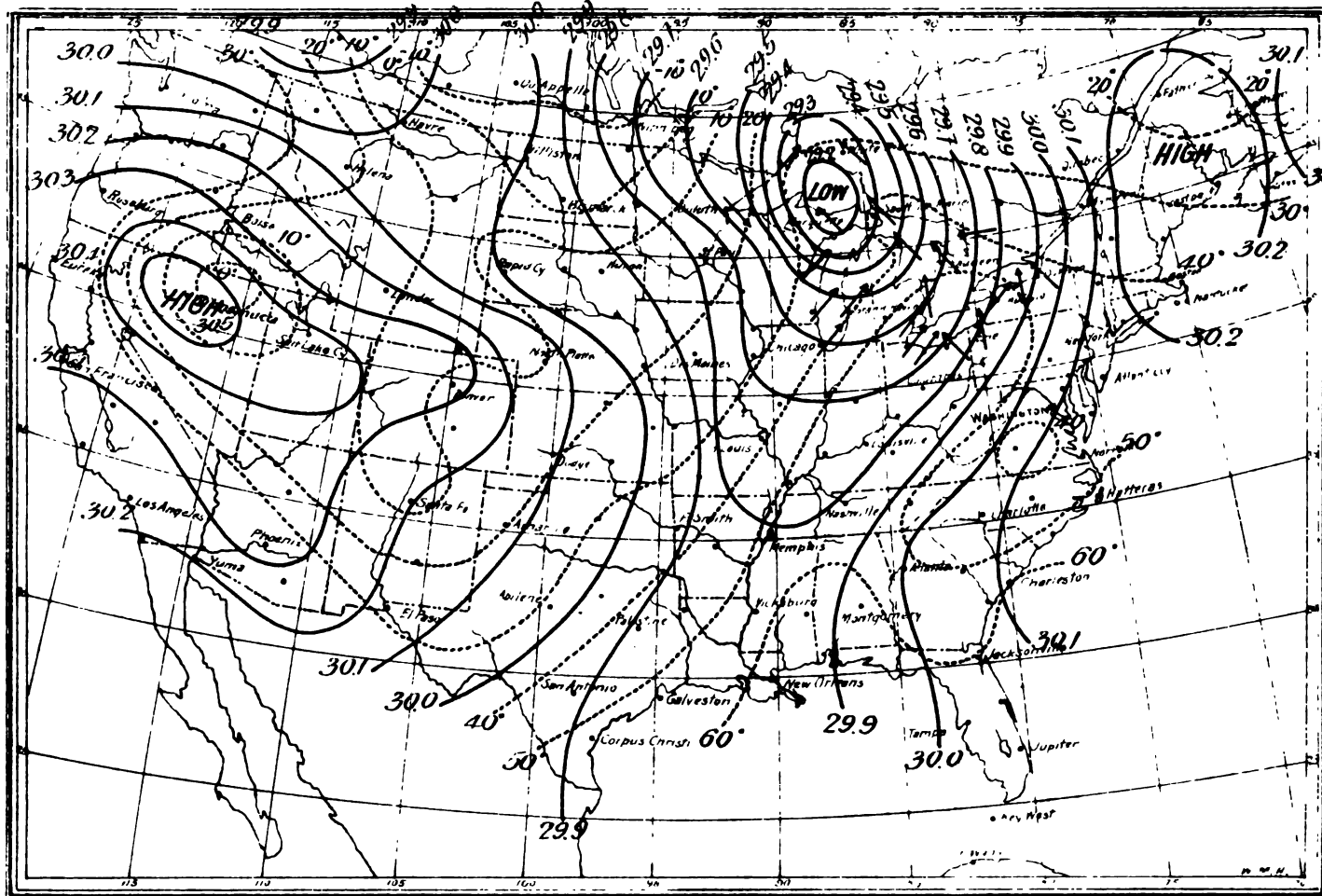


Chart D0000XLI

December 25, 1895—8 p. m.

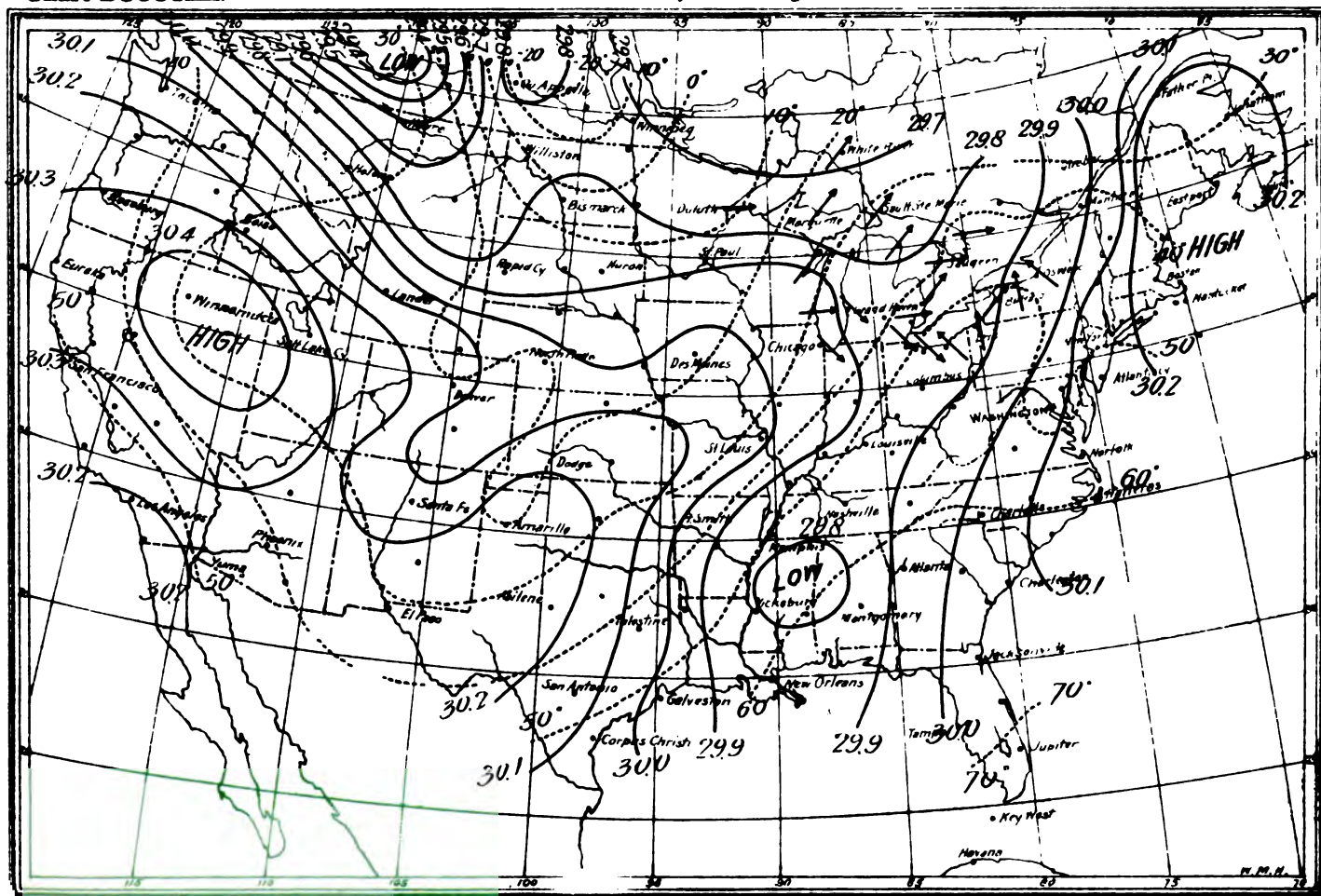


Chart DCCCCXI.

December 29, 1895—8 a. m.

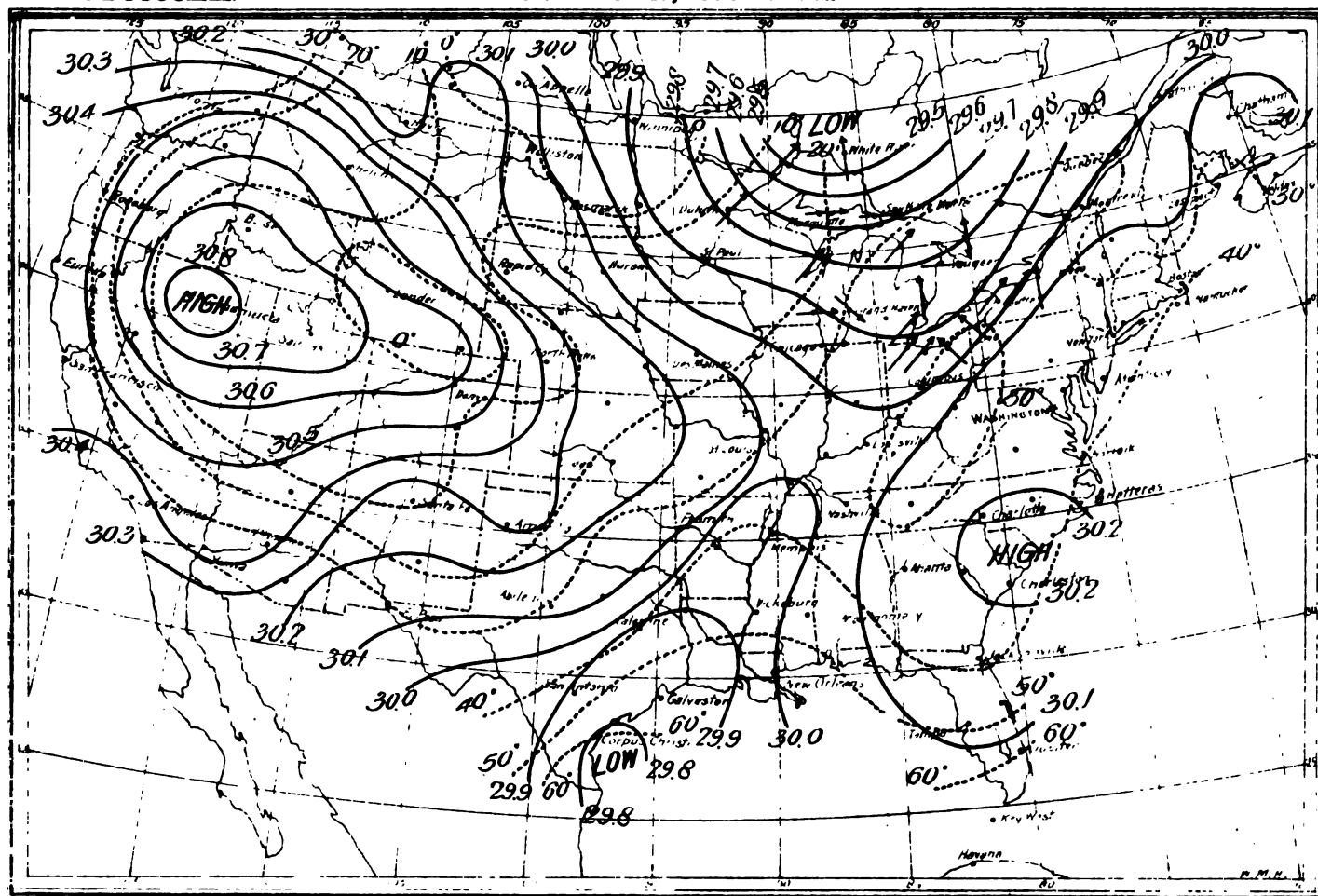


Chart DCCCCXII.

December 29, 1895—8 p. m.

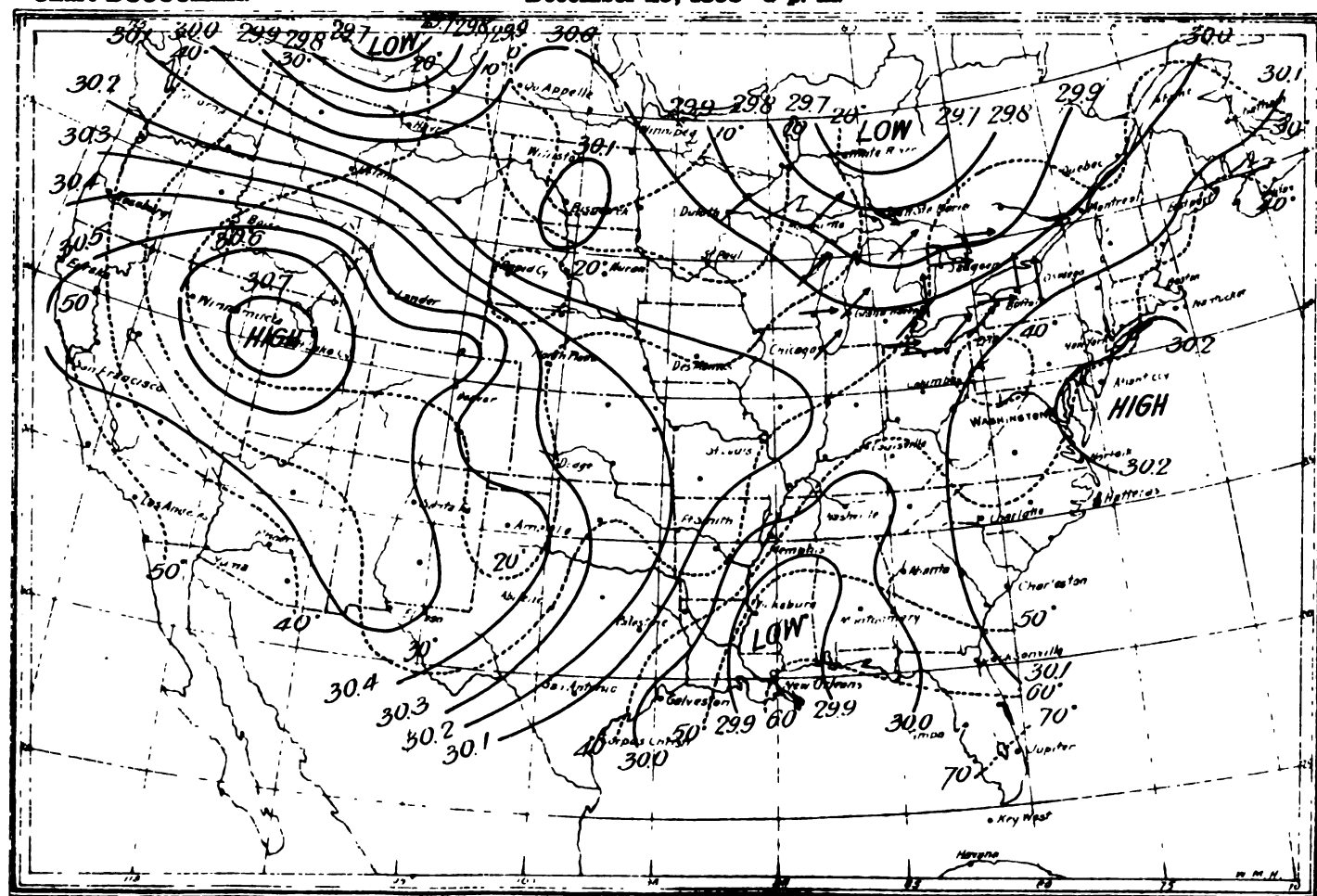


Chart DCOOXLIII.

December 30, 1895—8 a. m.

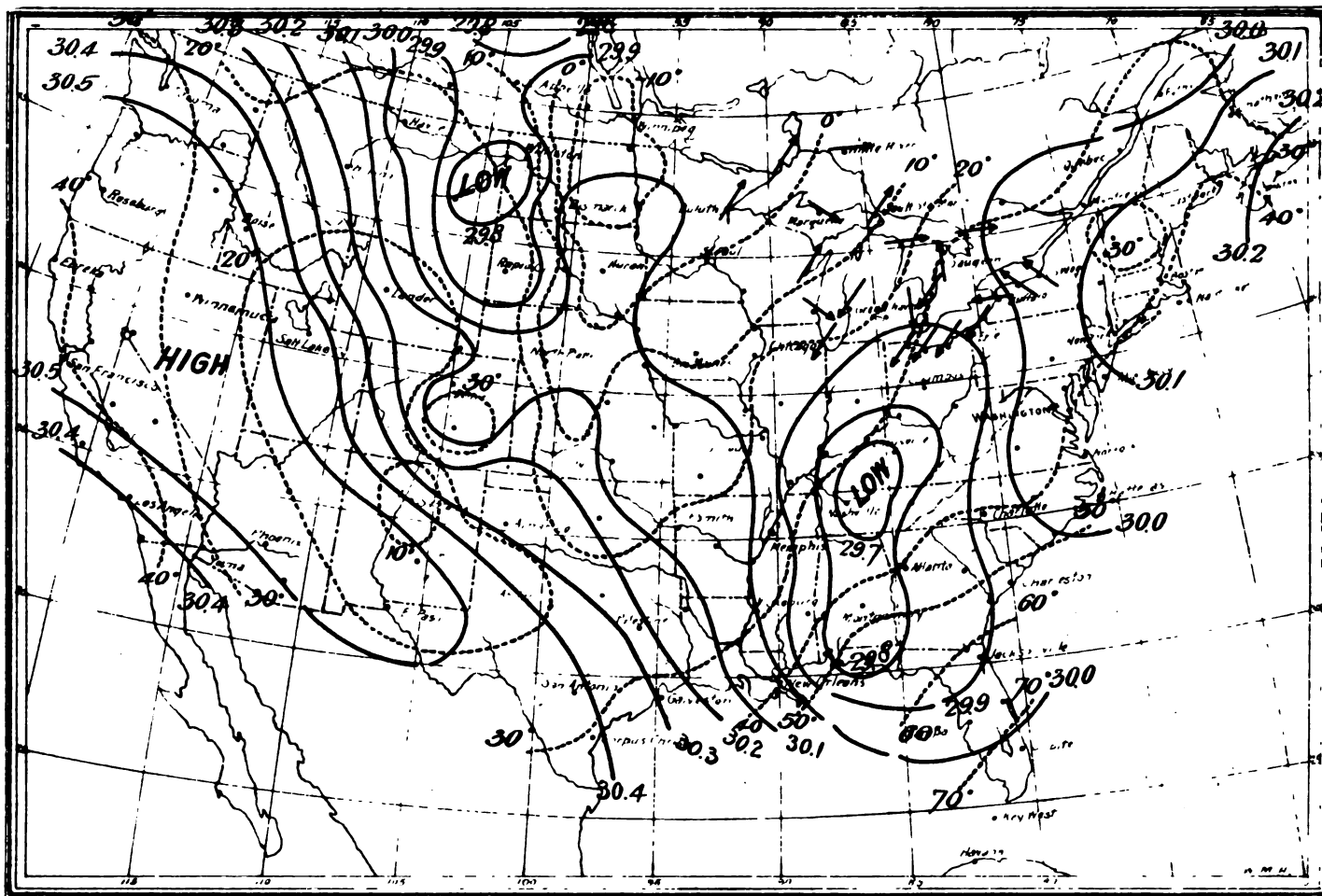


Chart DCOOXLIV.

December 30, 1895—8 p. m.

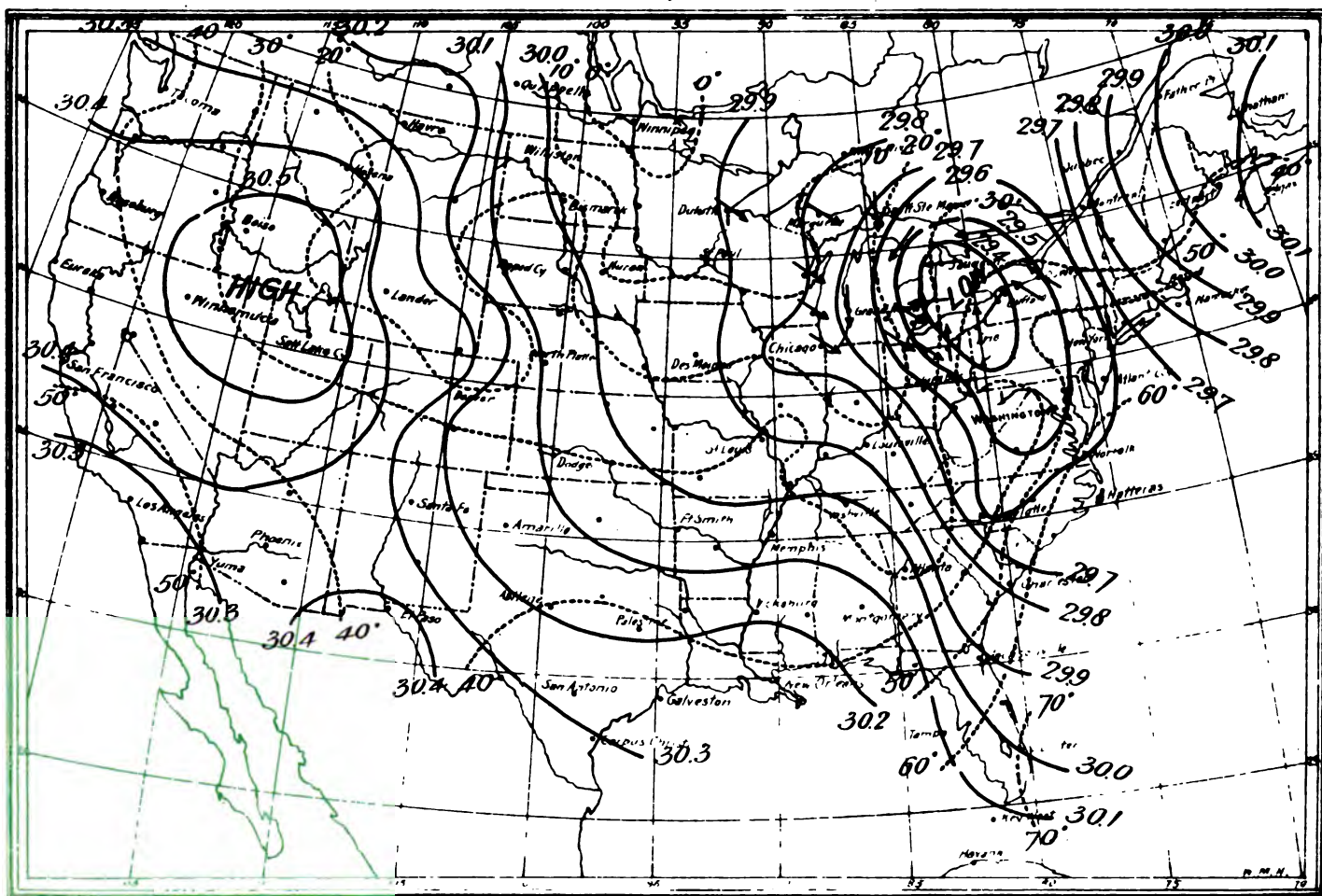


Chart DCCCCXLV.

December 12, 1896—8 a. m.

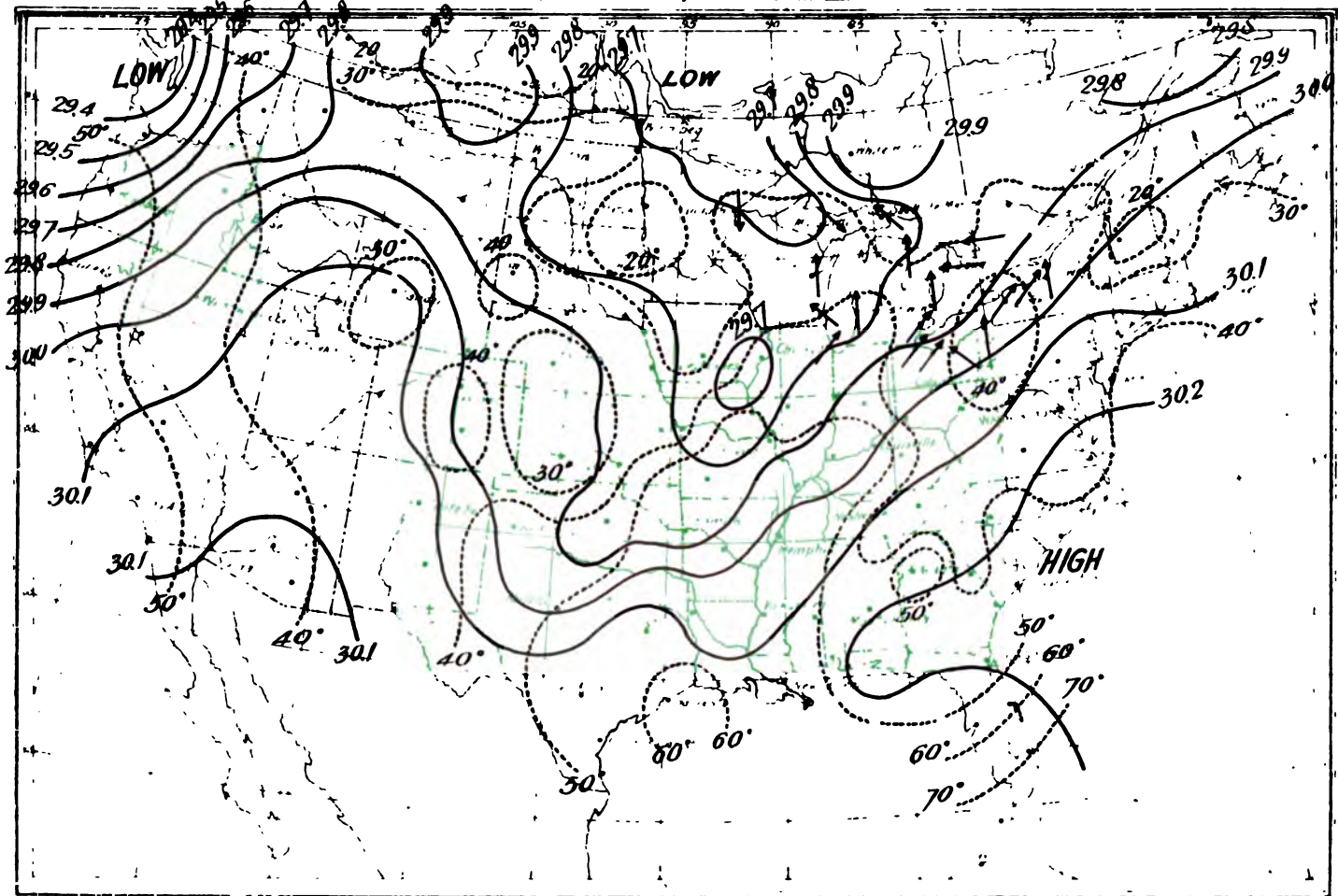


Chart DCCCCXLVI.

December 12, 1896—8 p. m.

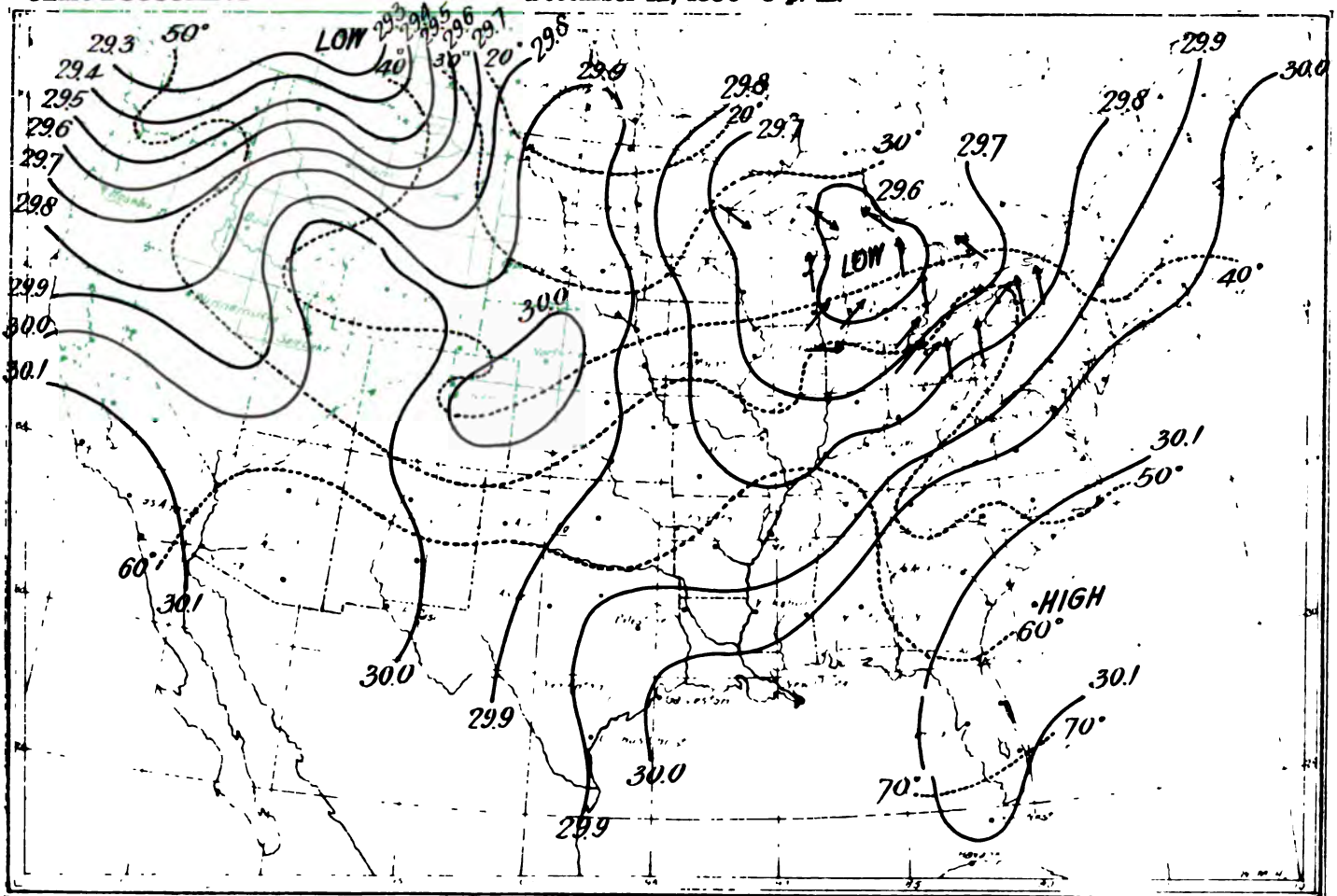


Chart D0000XLVII.

December 13, 1896—8 a. m.

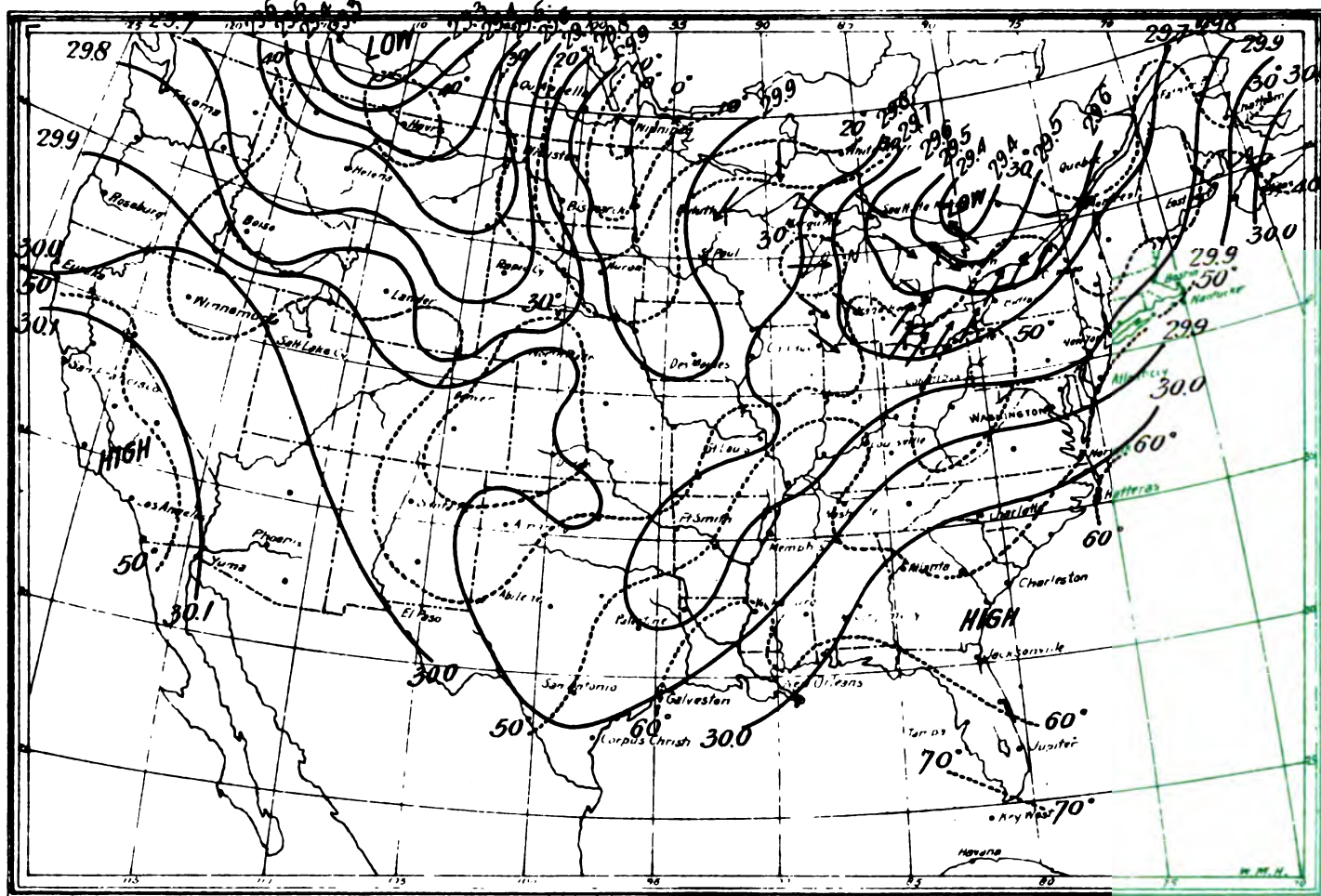


Chart D0000XLVIII.

December 13, 1896—8 p. m.

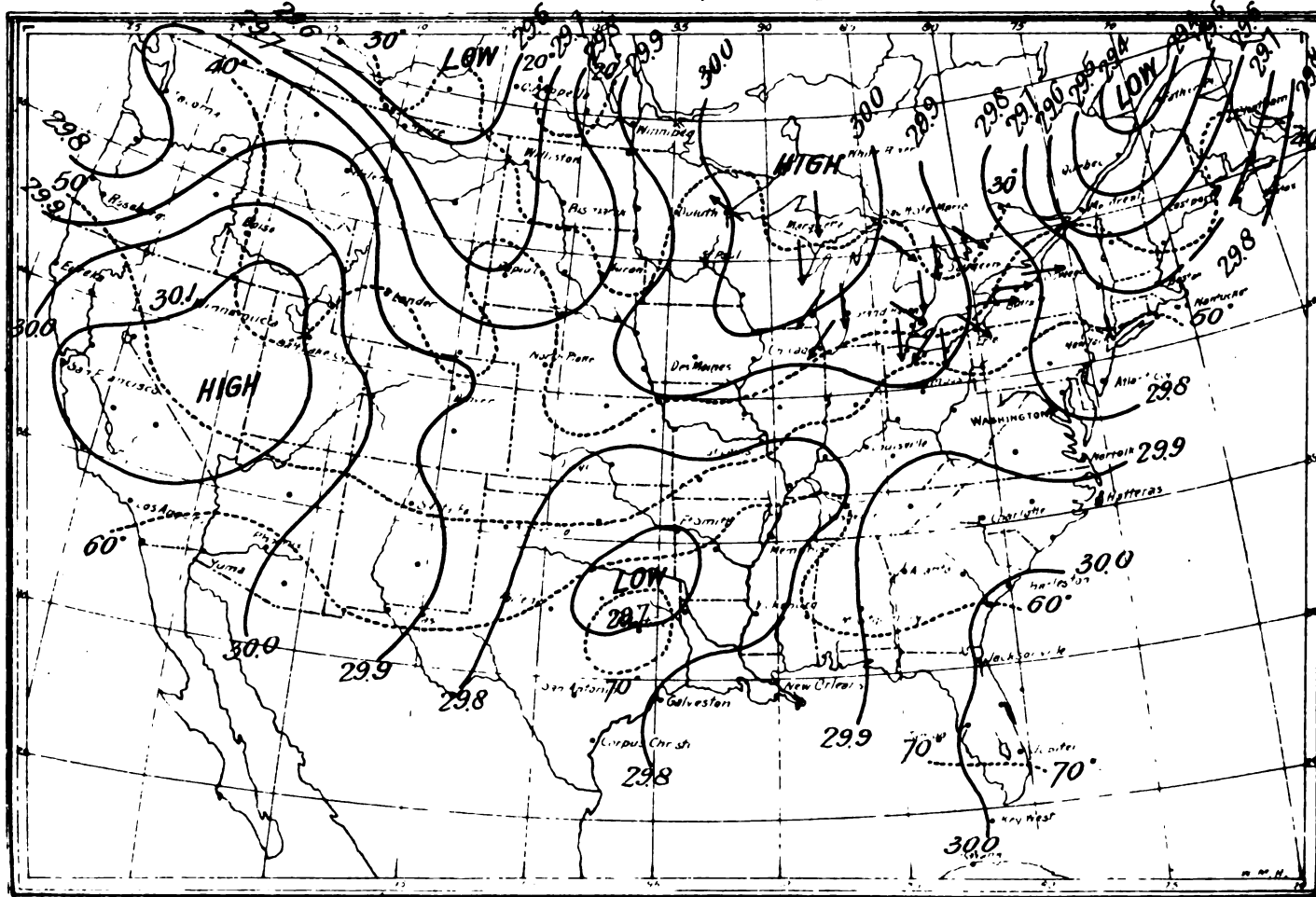


Chart DCCCCXIX.

December 3, 1898—8 p. m.

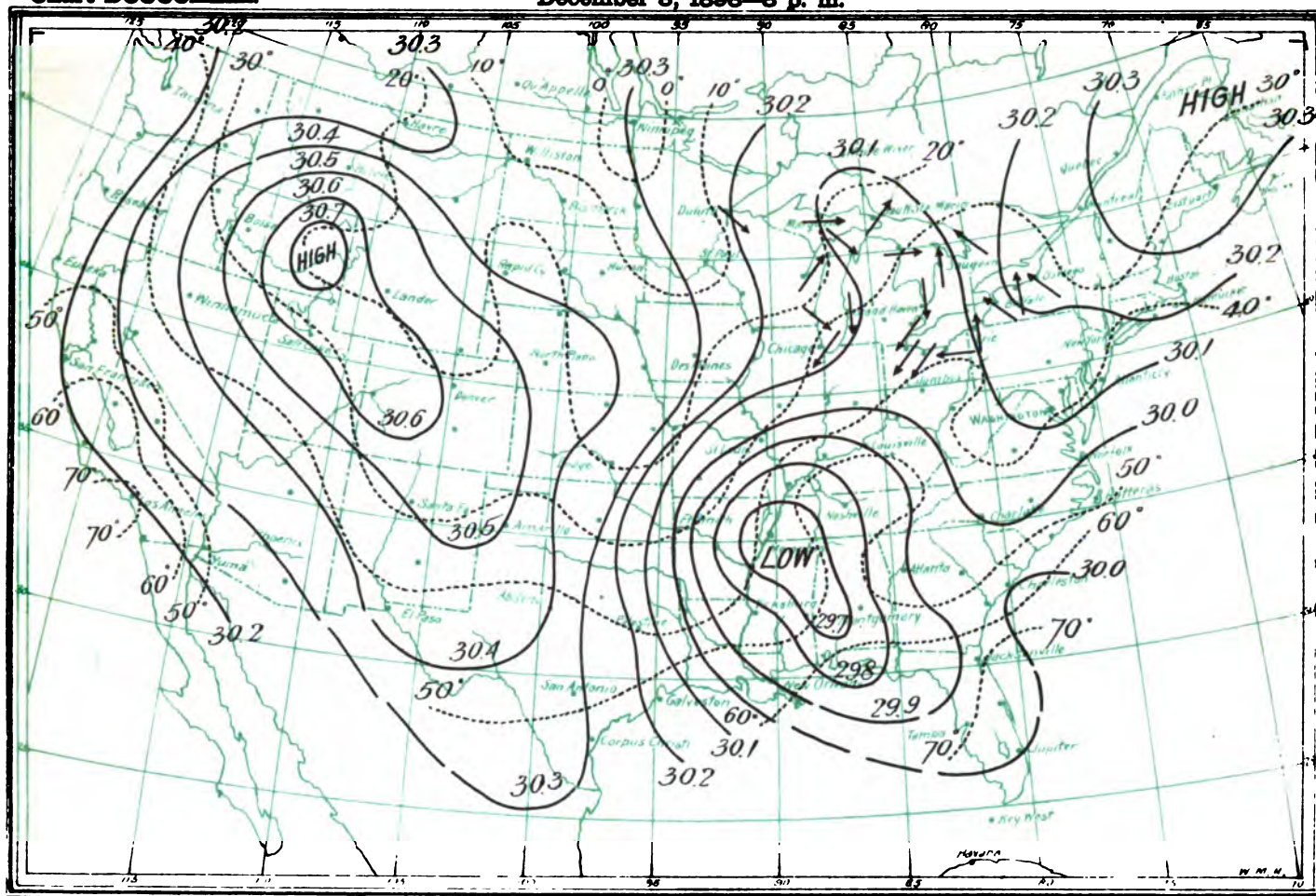


Chart DCCCC.

December 4, 1898—8 a. m.

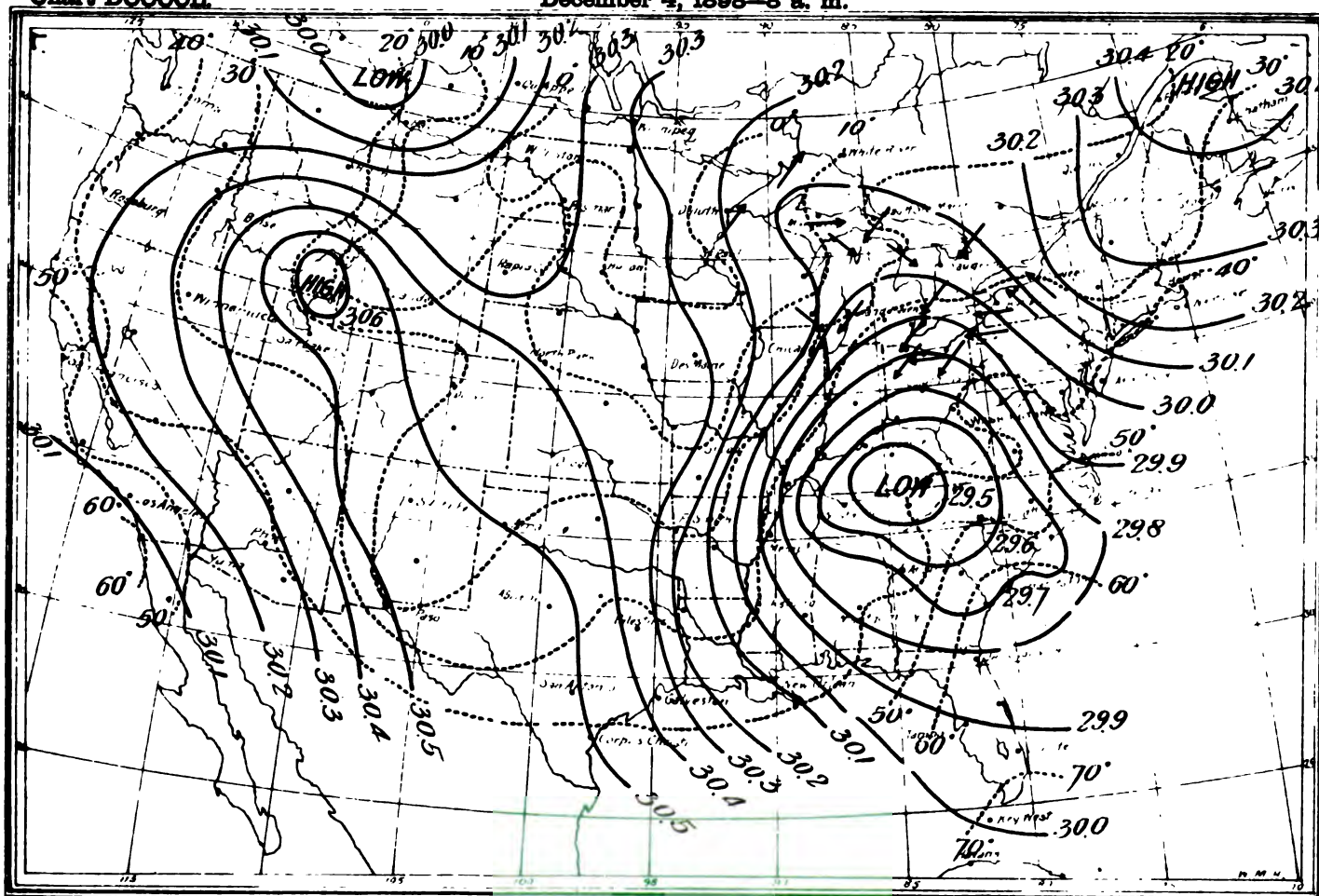


Chart DCCCCI.

December 4, 1898—8 p. m.

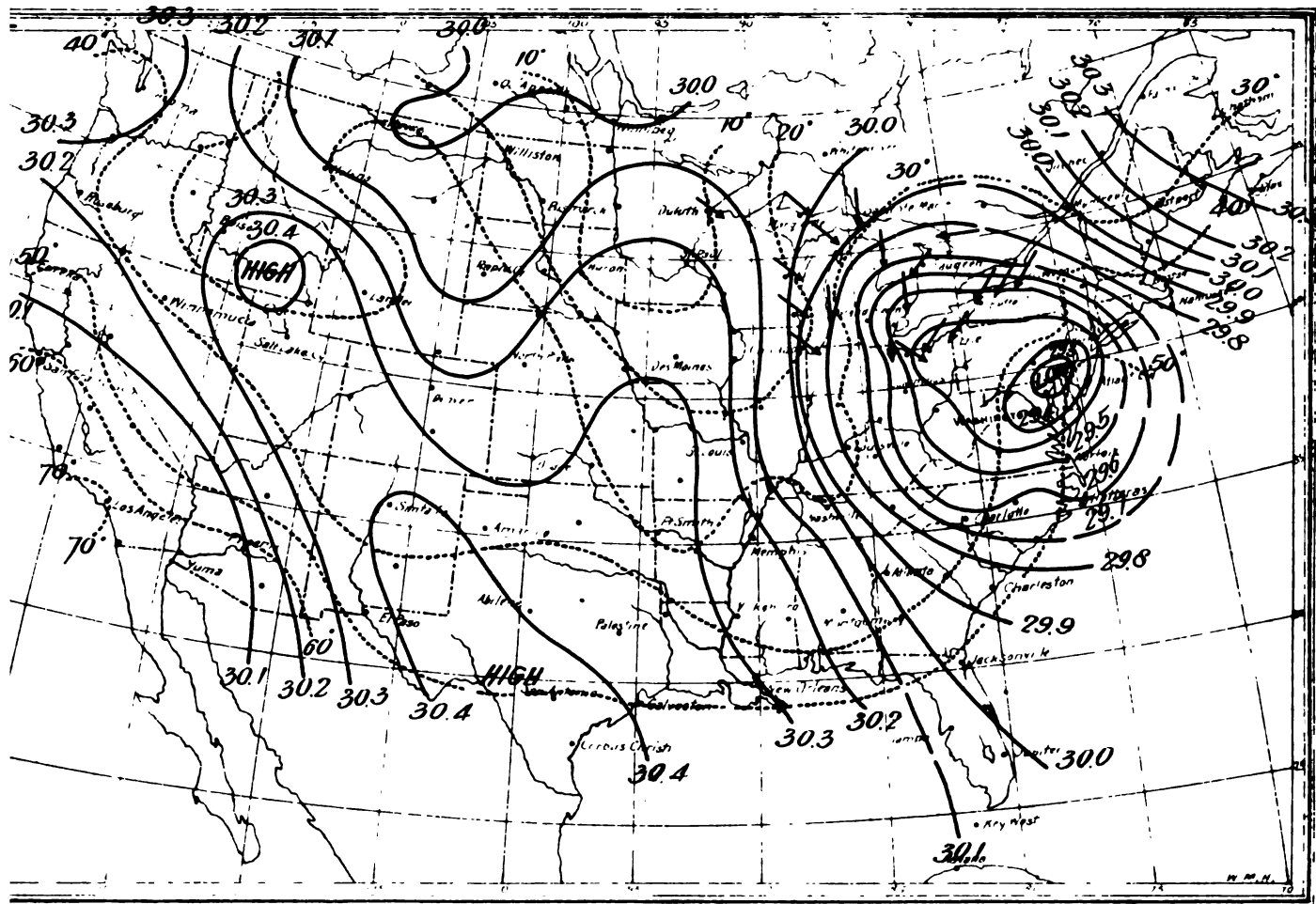


Chart DCCCCII.

December 5, 1898—8 a. m.

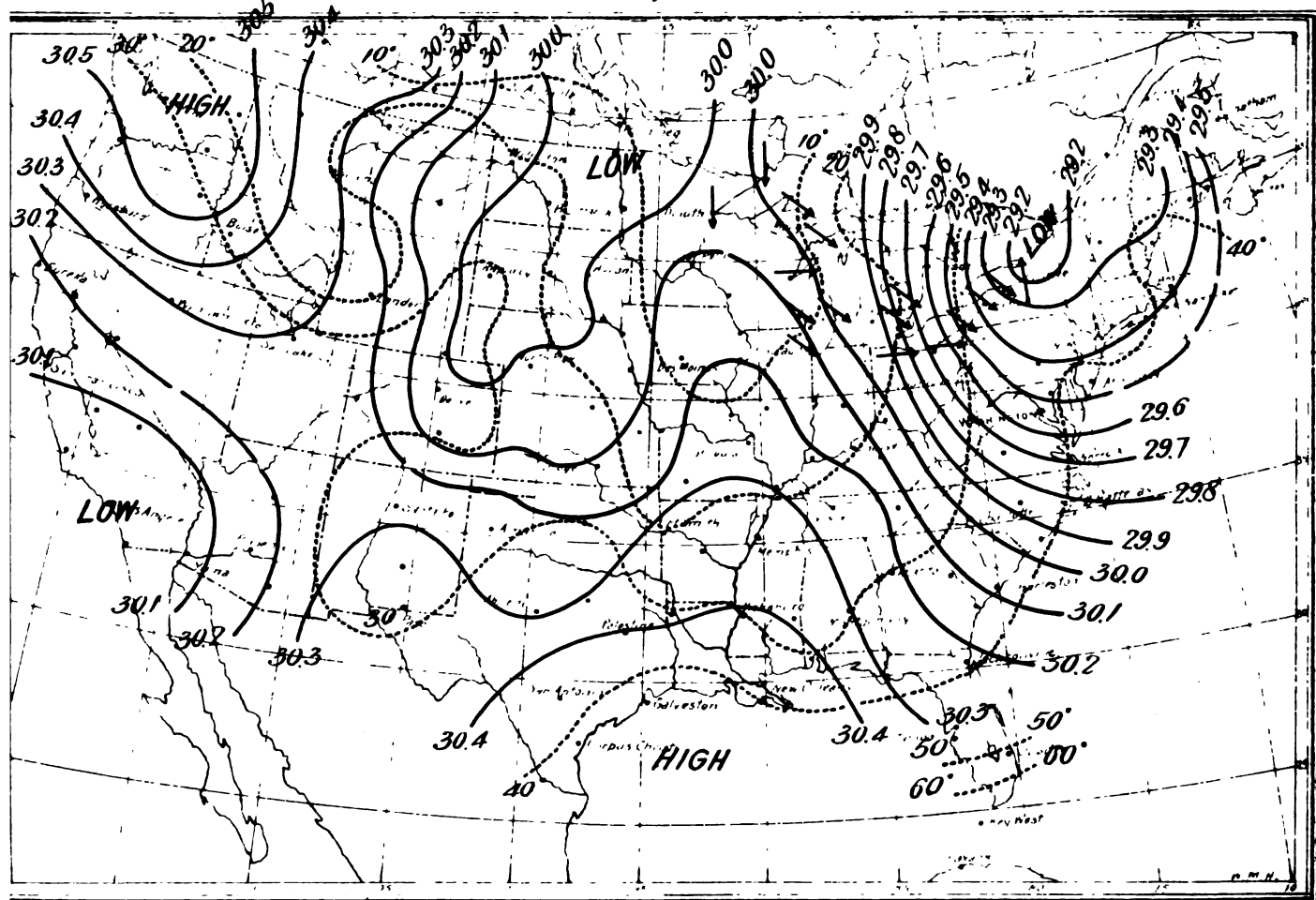


Chart D0000LIII.

December 10, 1899—8 p. m.

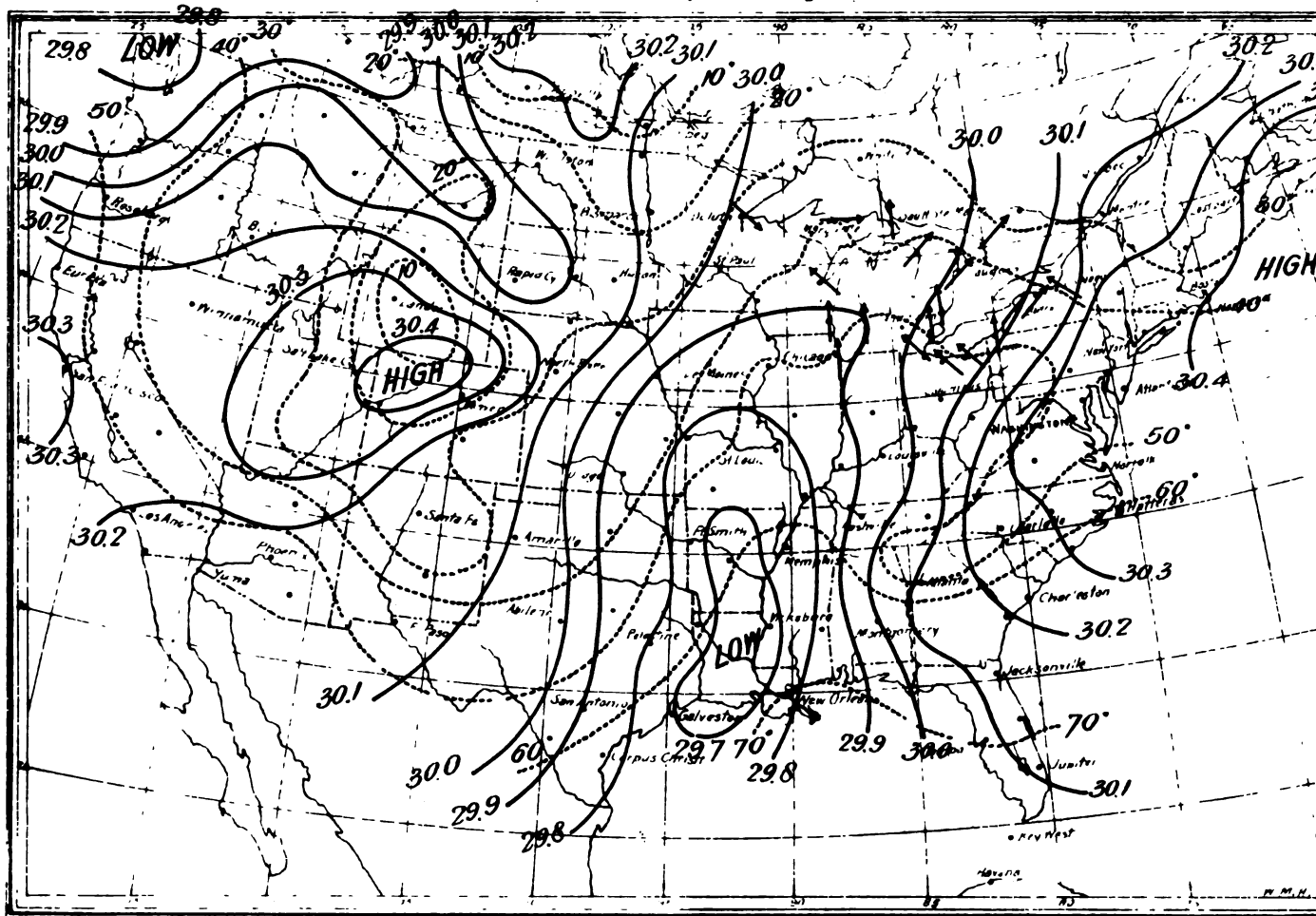


Chart D0000LIV.

December 11, 1899—8 a. m.

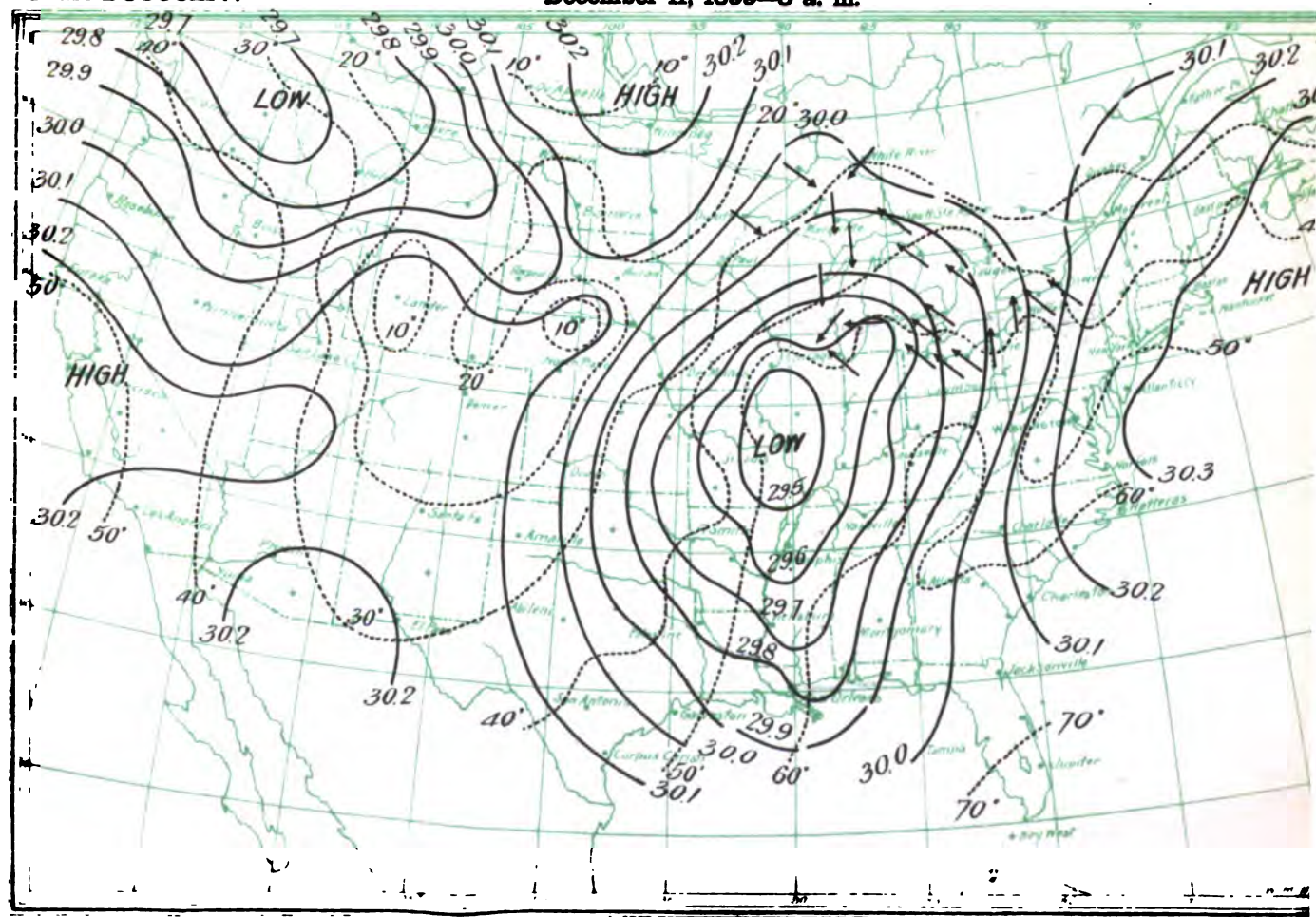


Chart DCCCCLV.

December 11, 1899—8 p. m.

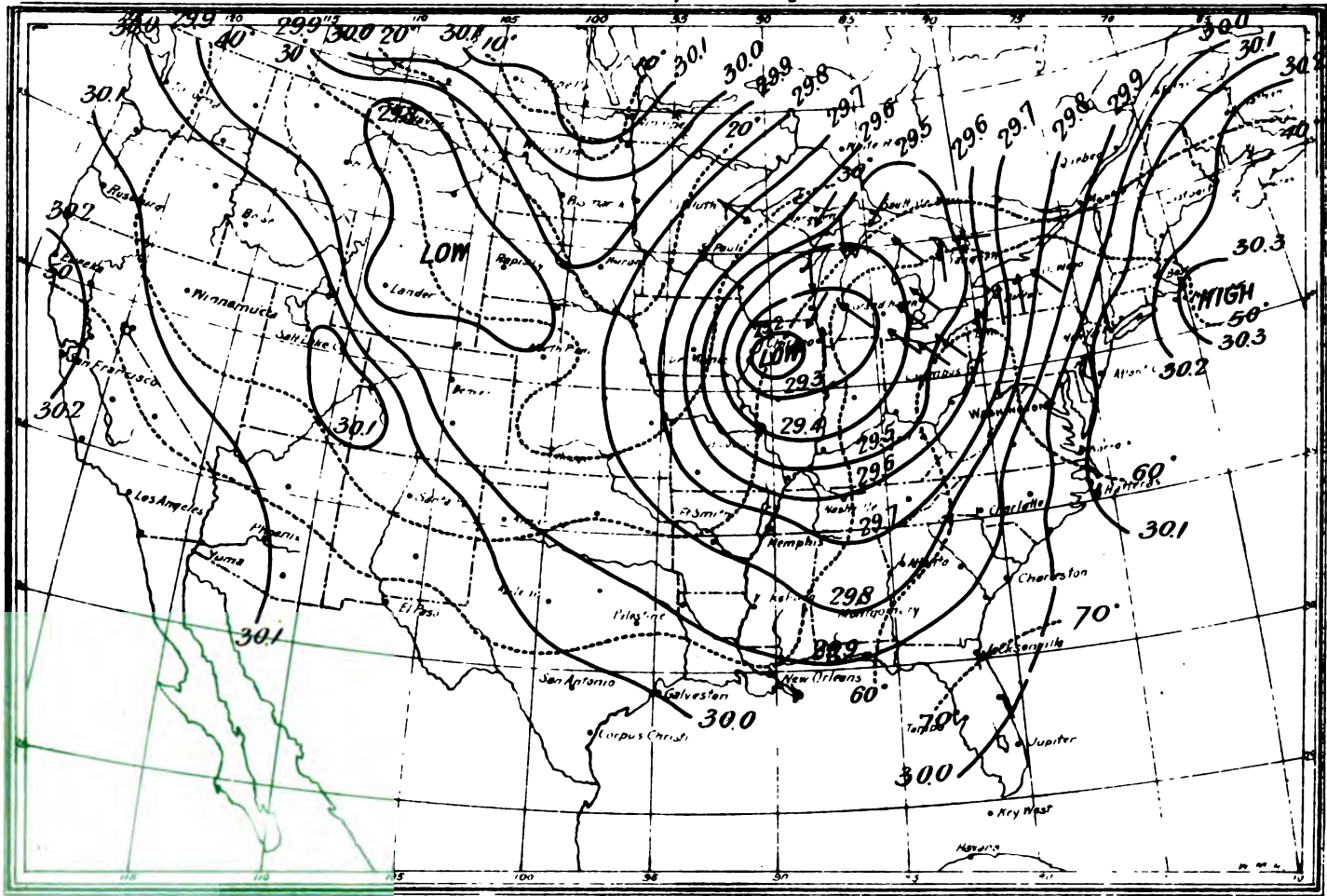


Chart DCCCCLV.

December 12, 1899—8 a. m.

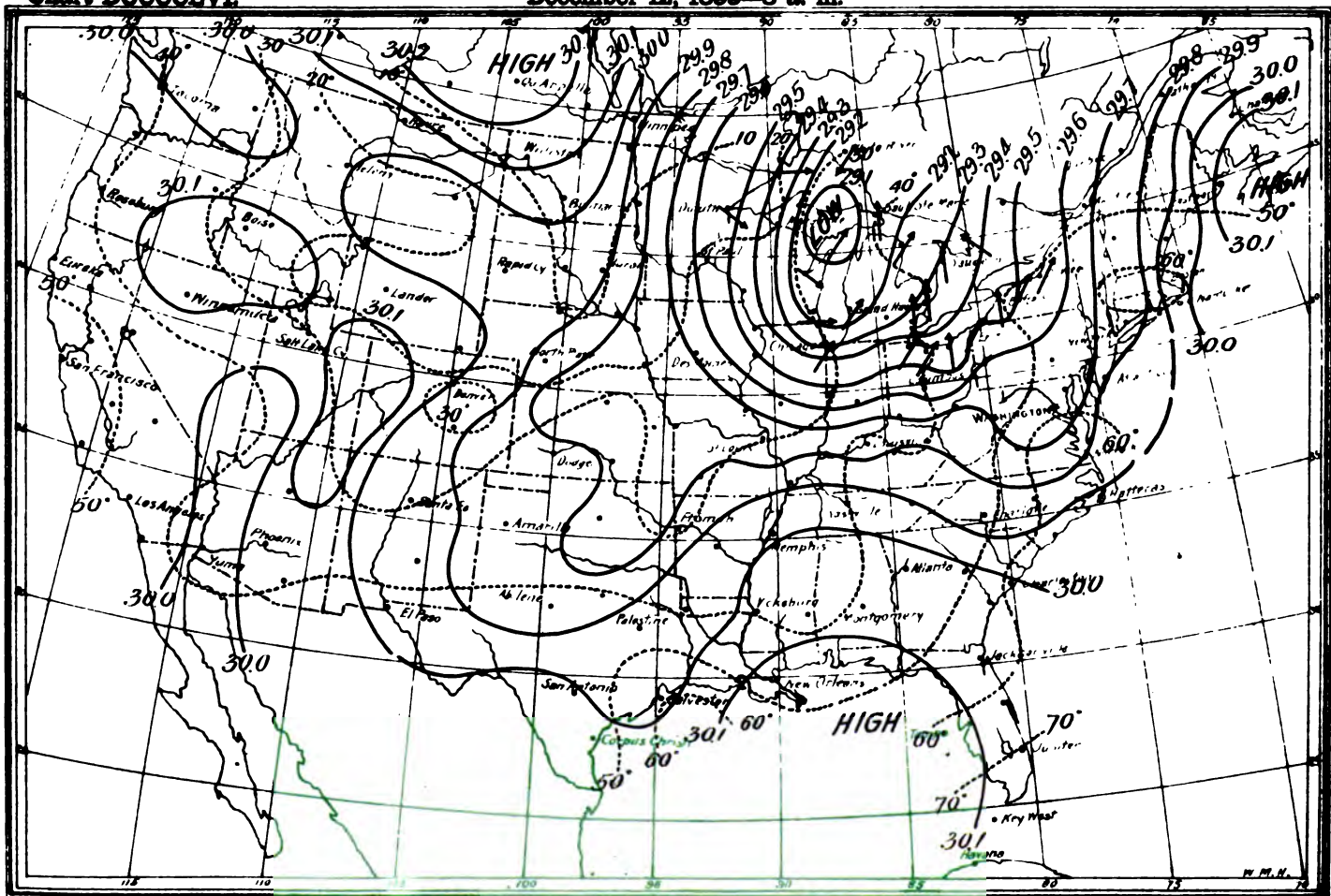


Chart DCCCCLVII

December 8, 1900—8 a. m.

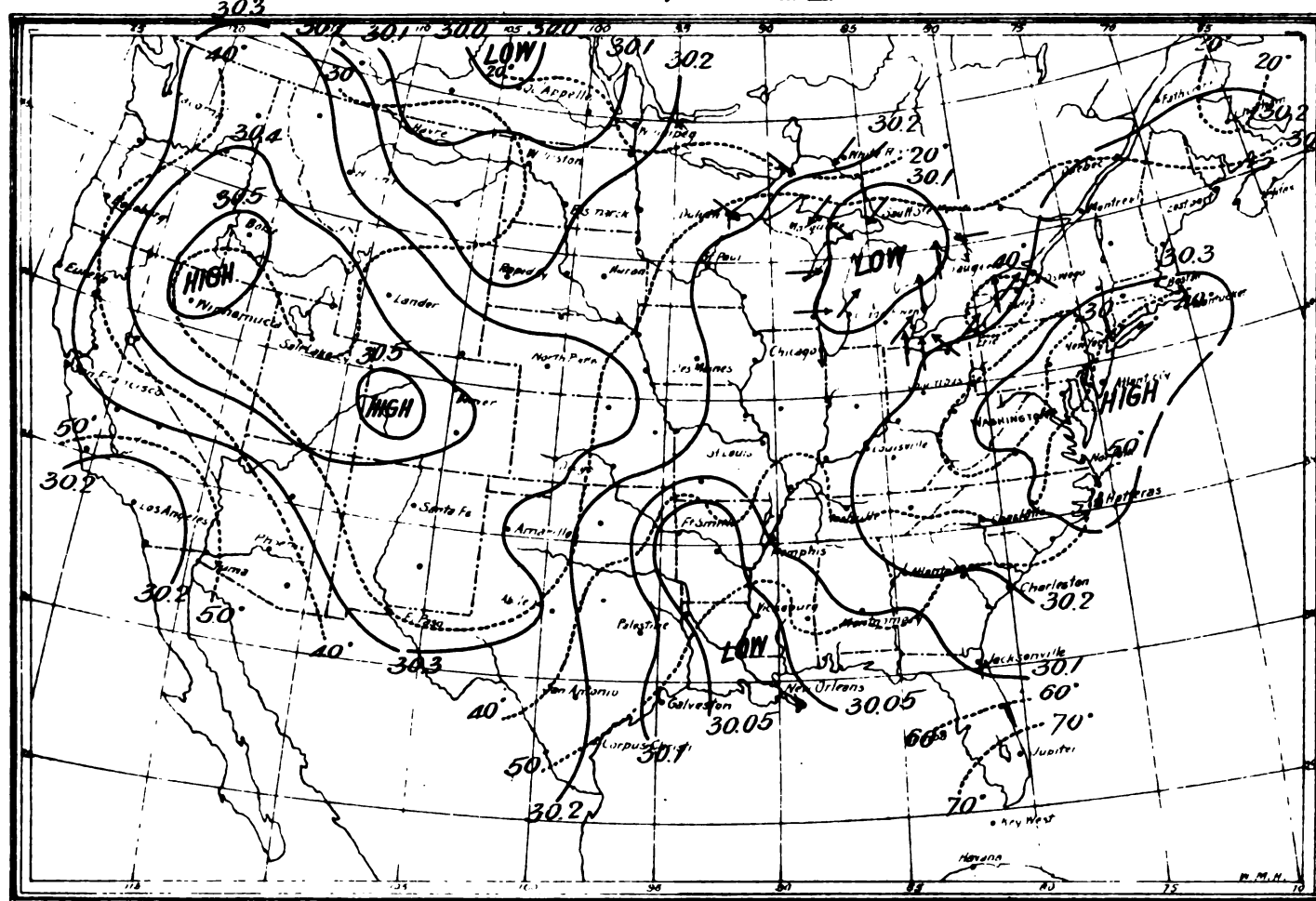
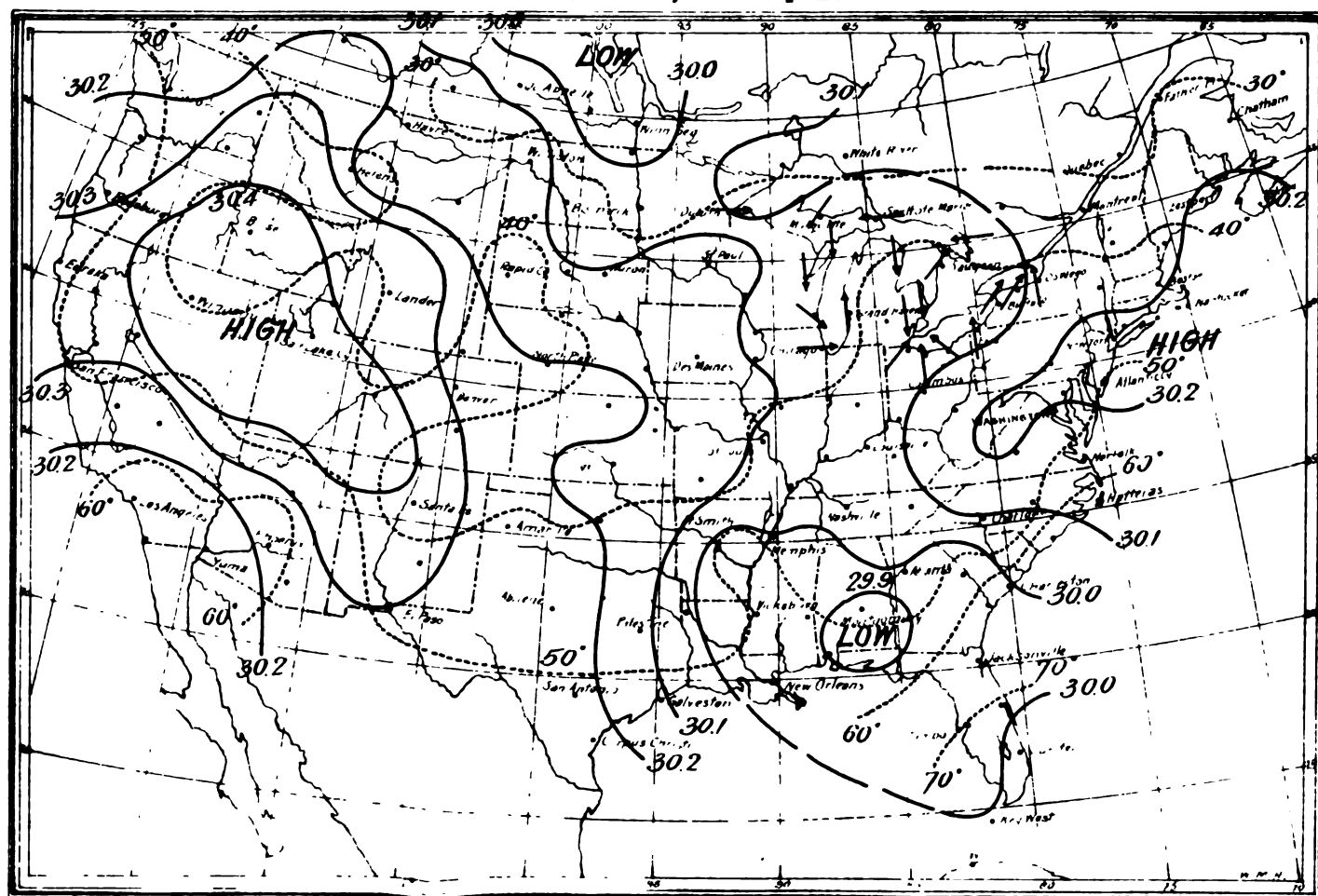


Chart DCCCCLVIII

December 8, 1900—8 p. m.



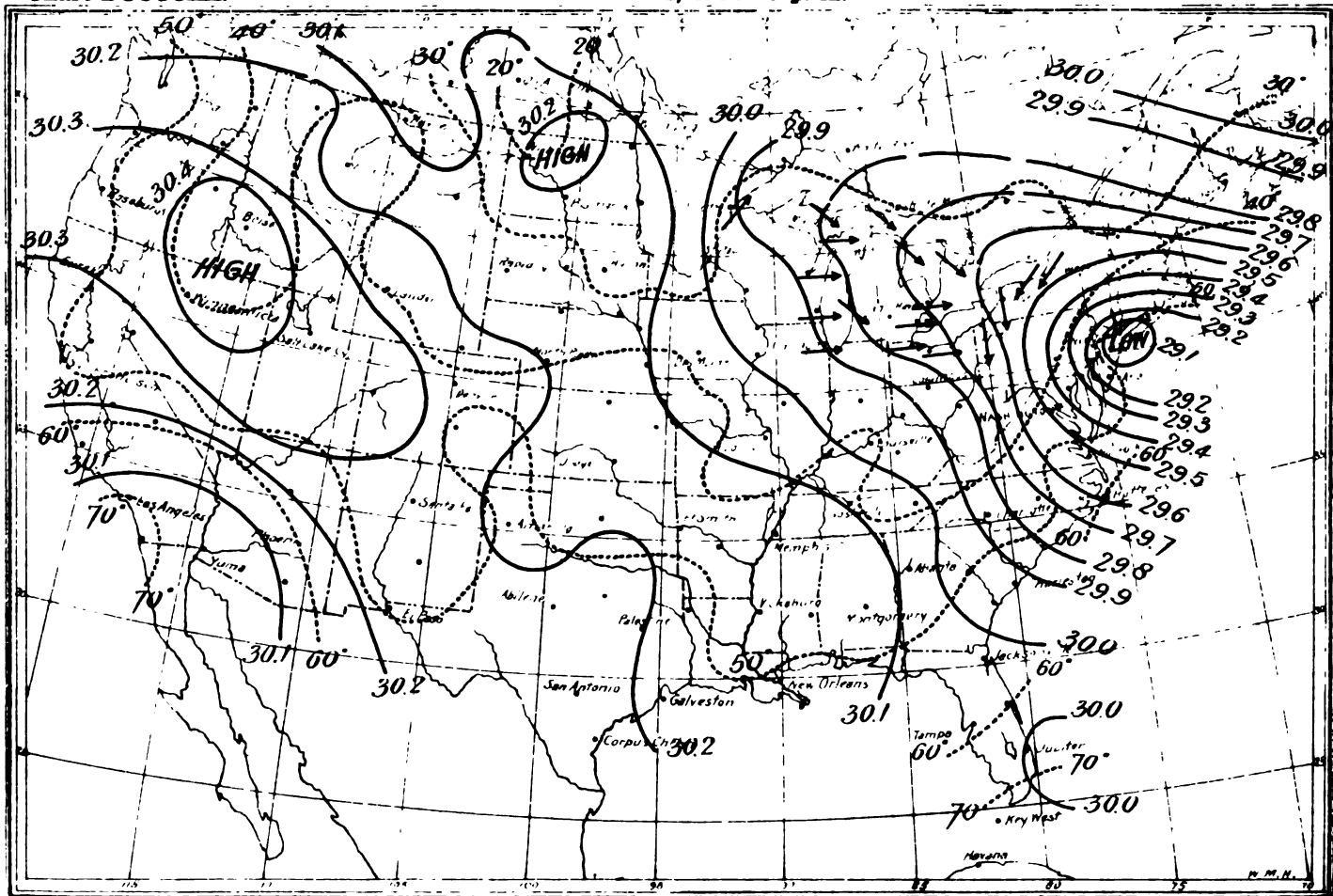
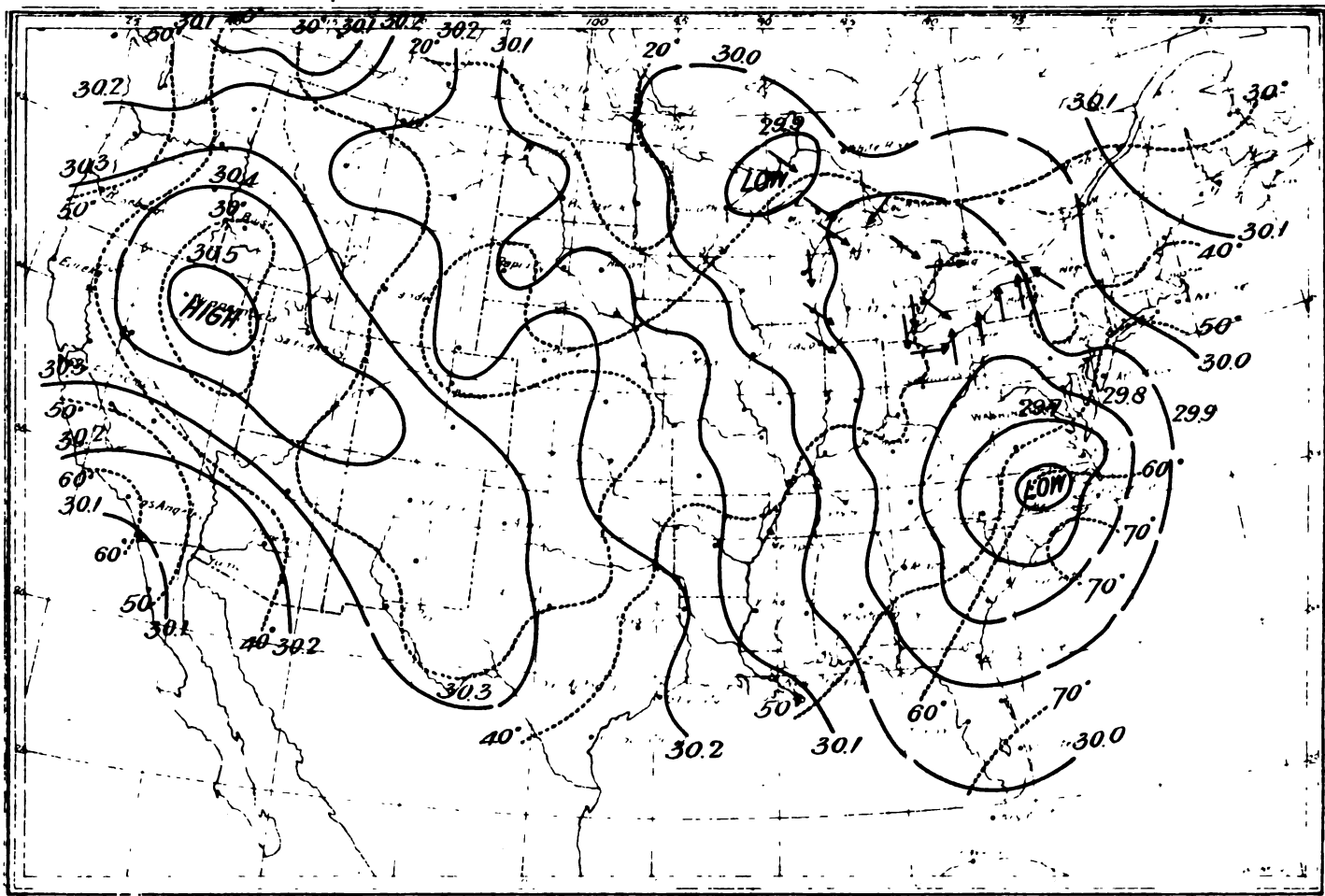


Chart D0000LXI

December 7, 1900—8 a. m.

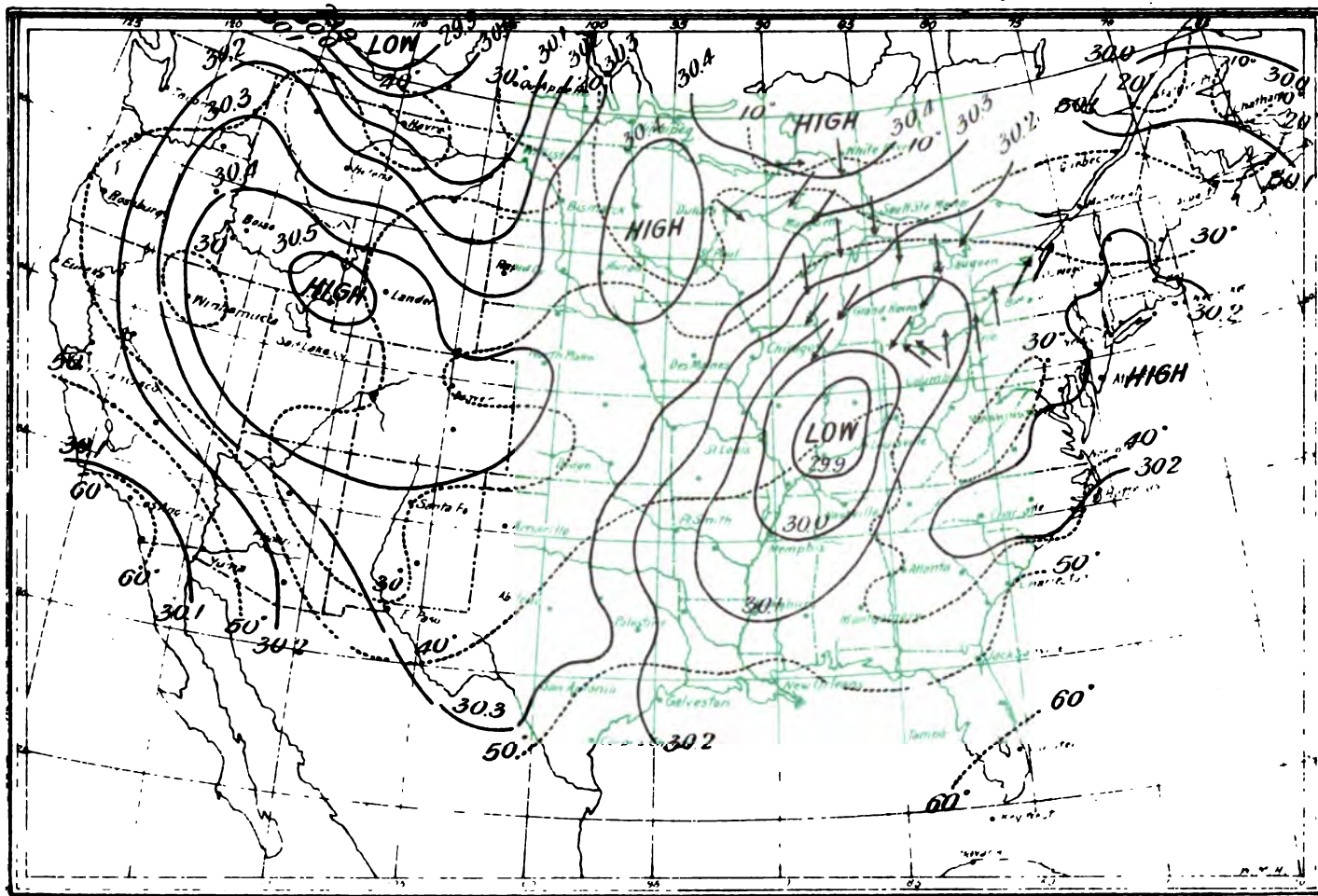


Chart D0000LXII

December 7, 1900—8 p. m.

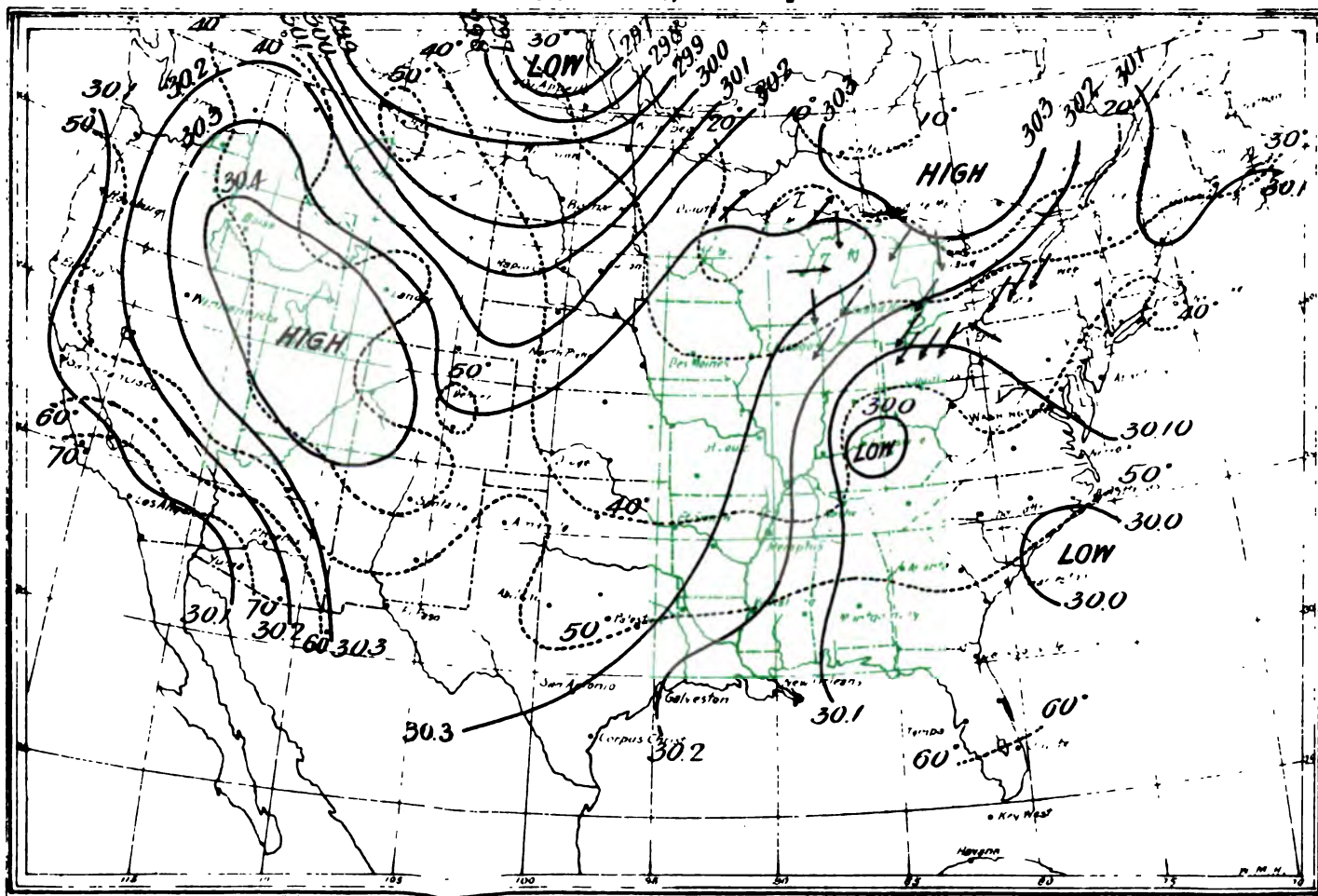


Chart DCCCCXIII.

December 8, 1900—8 a. m.

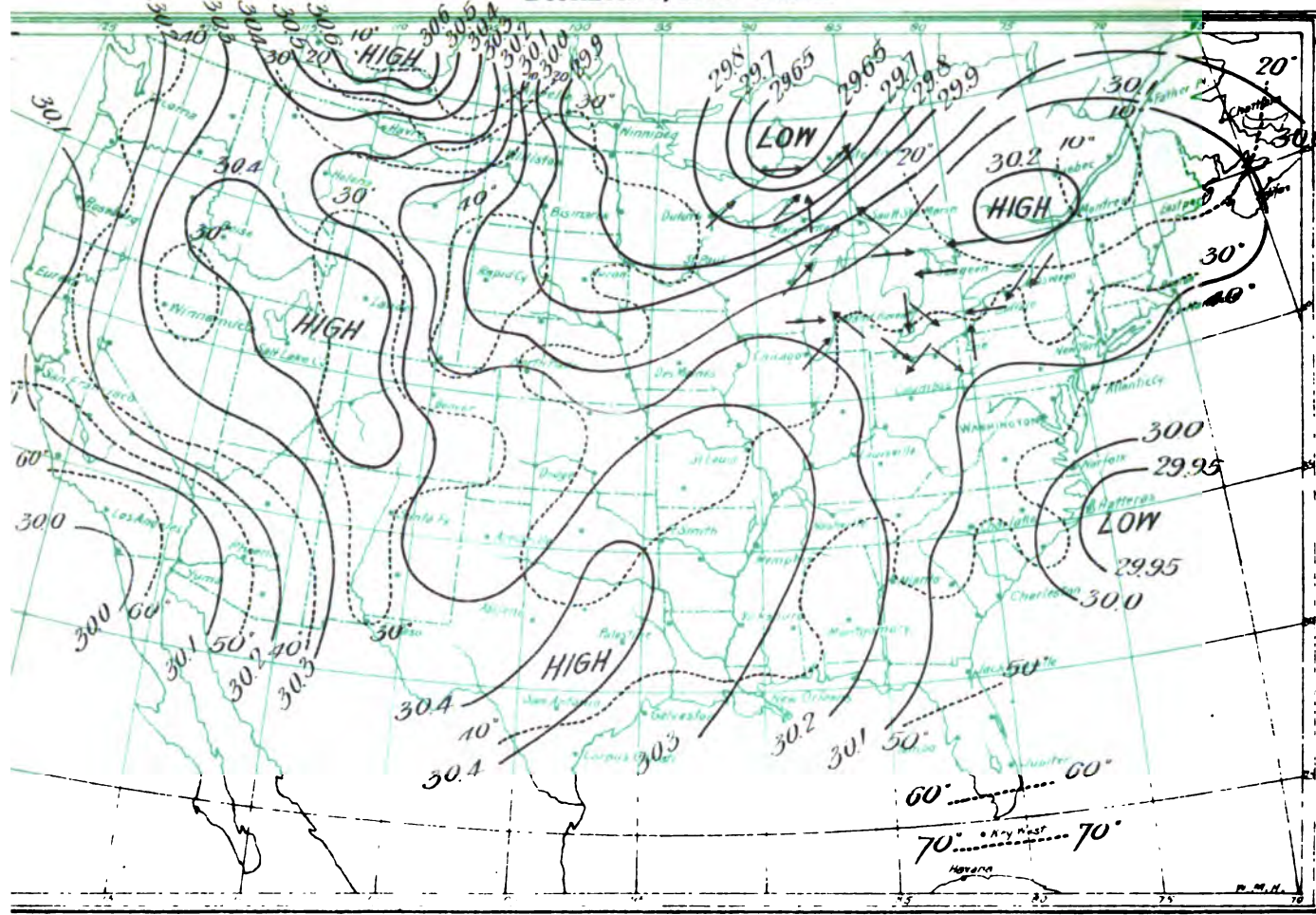


Chart DCCCCXIV.

December 8, 1900—8 p. m.

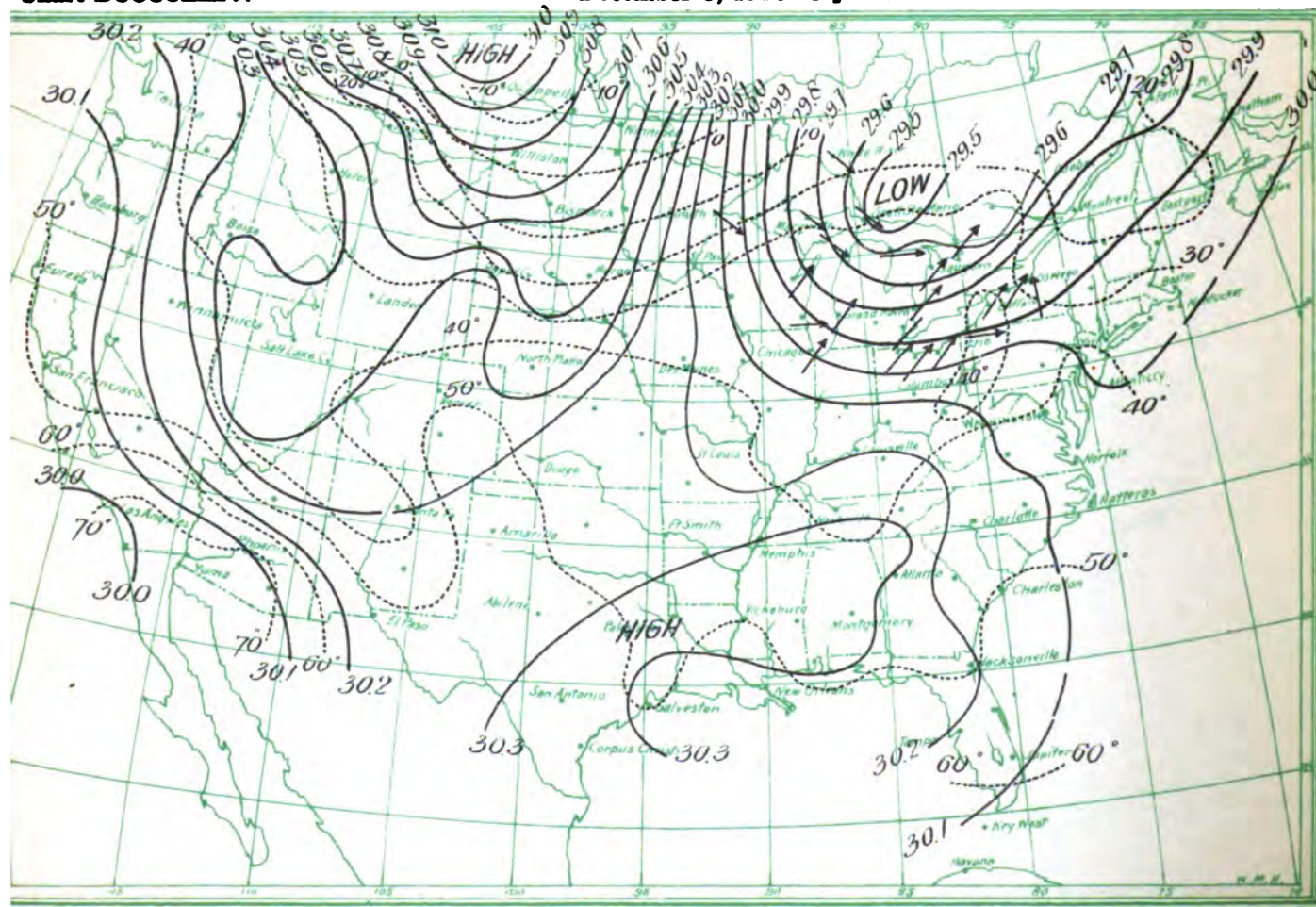


Chart DCCCCOLXV.

December 22, 1900—8 a. m.

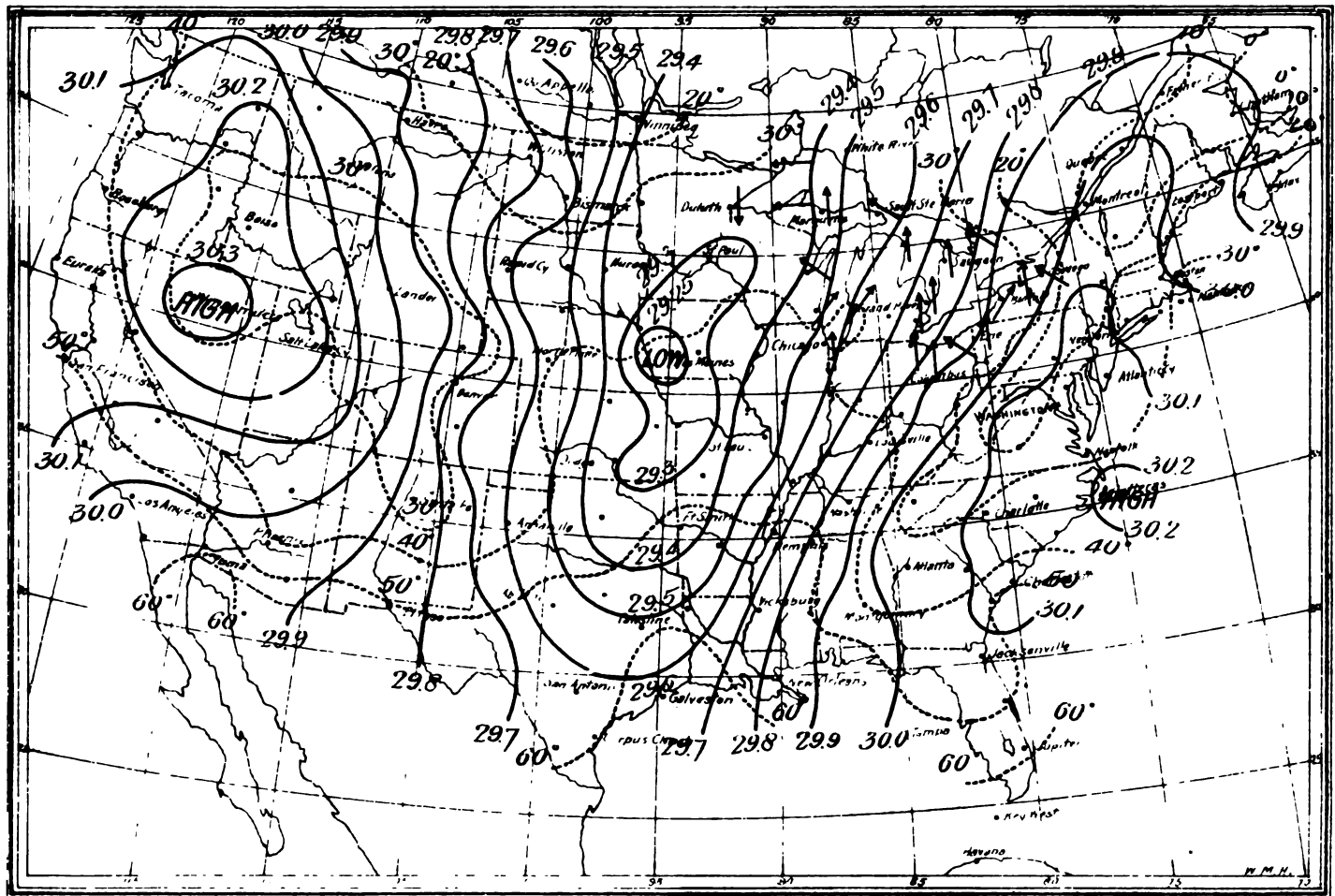


Chart DCCCCOLXVI.

December 22, 1900—8 p. m.

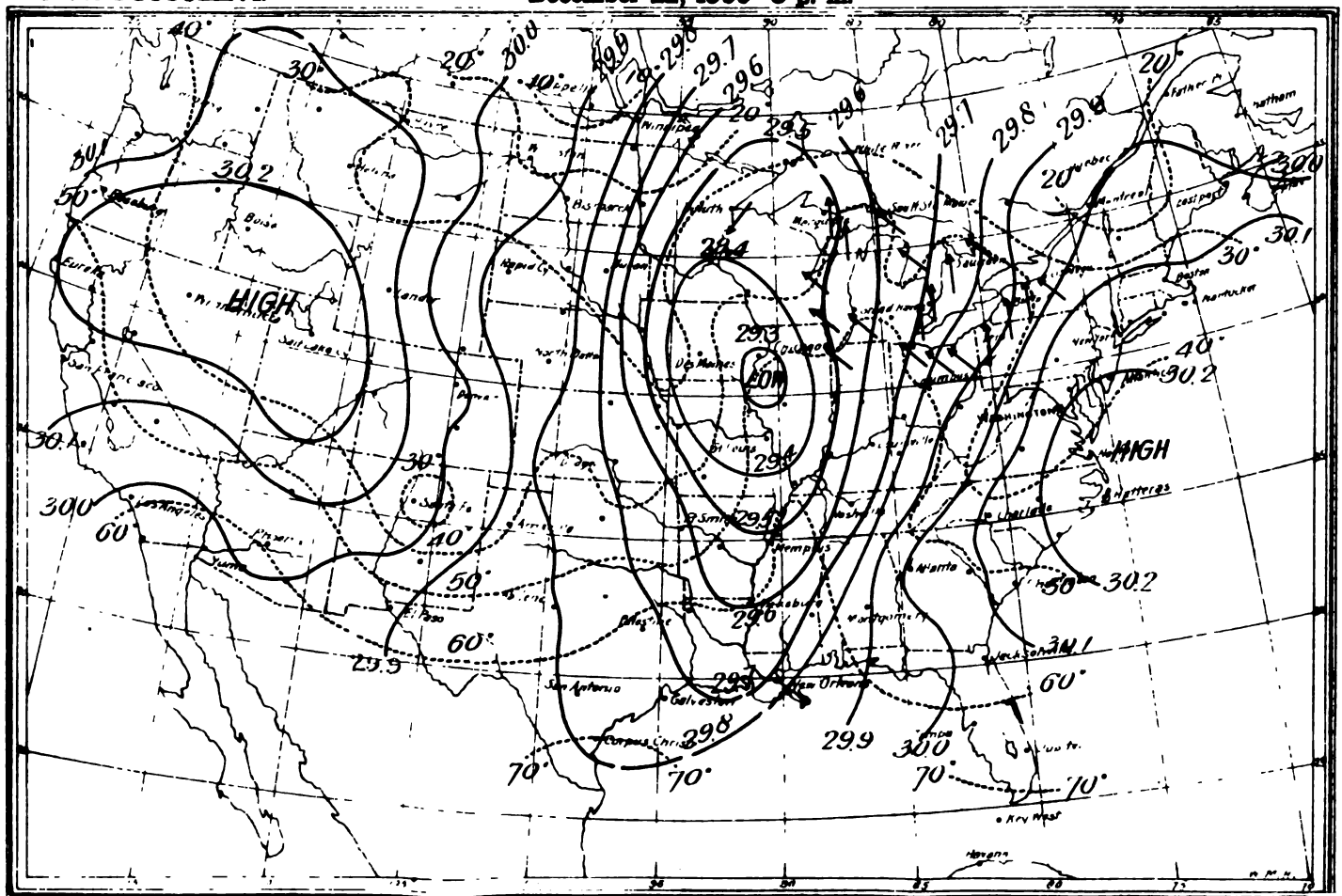


Chart D0000LXVII

December 28, 1900—8 a. m.

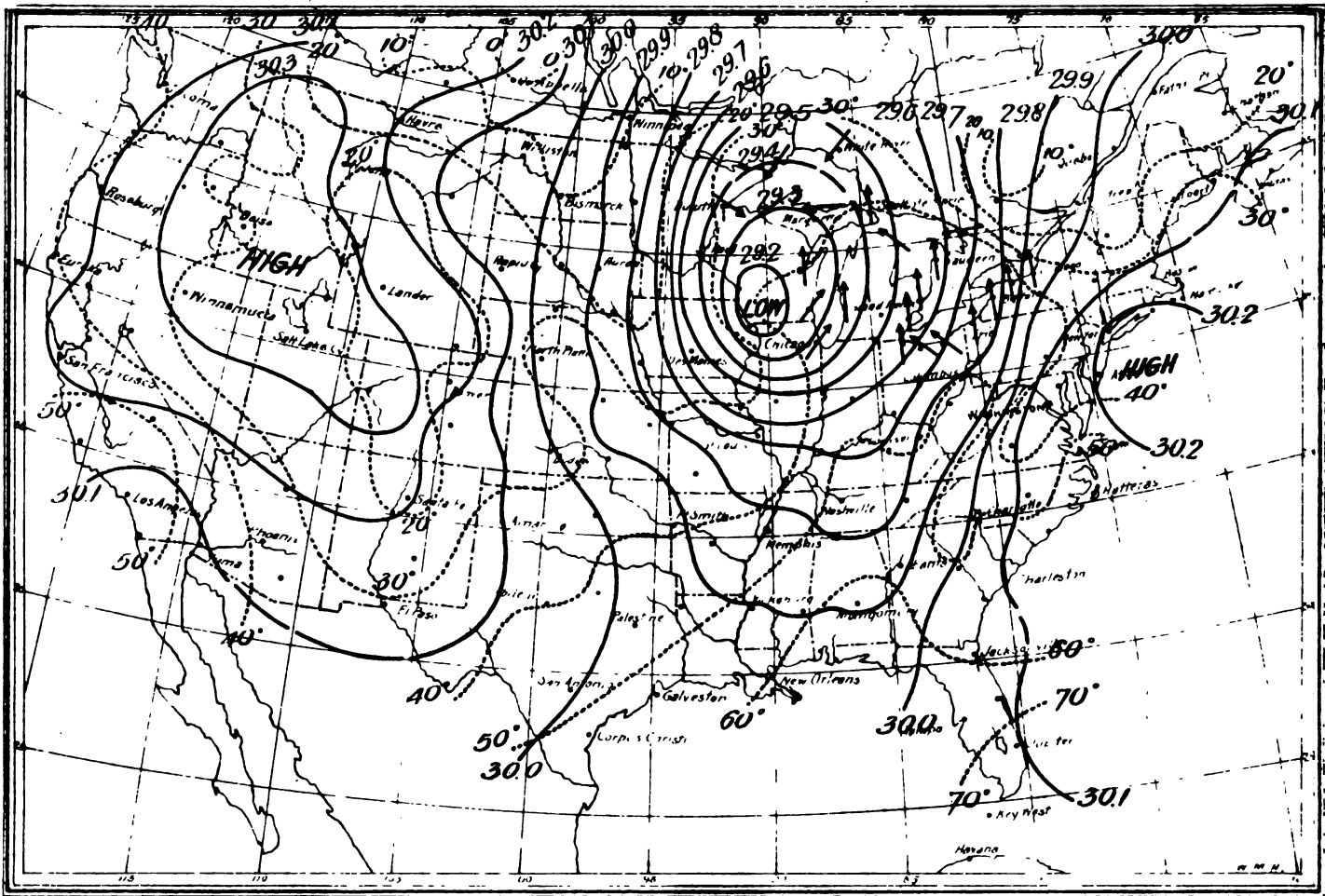
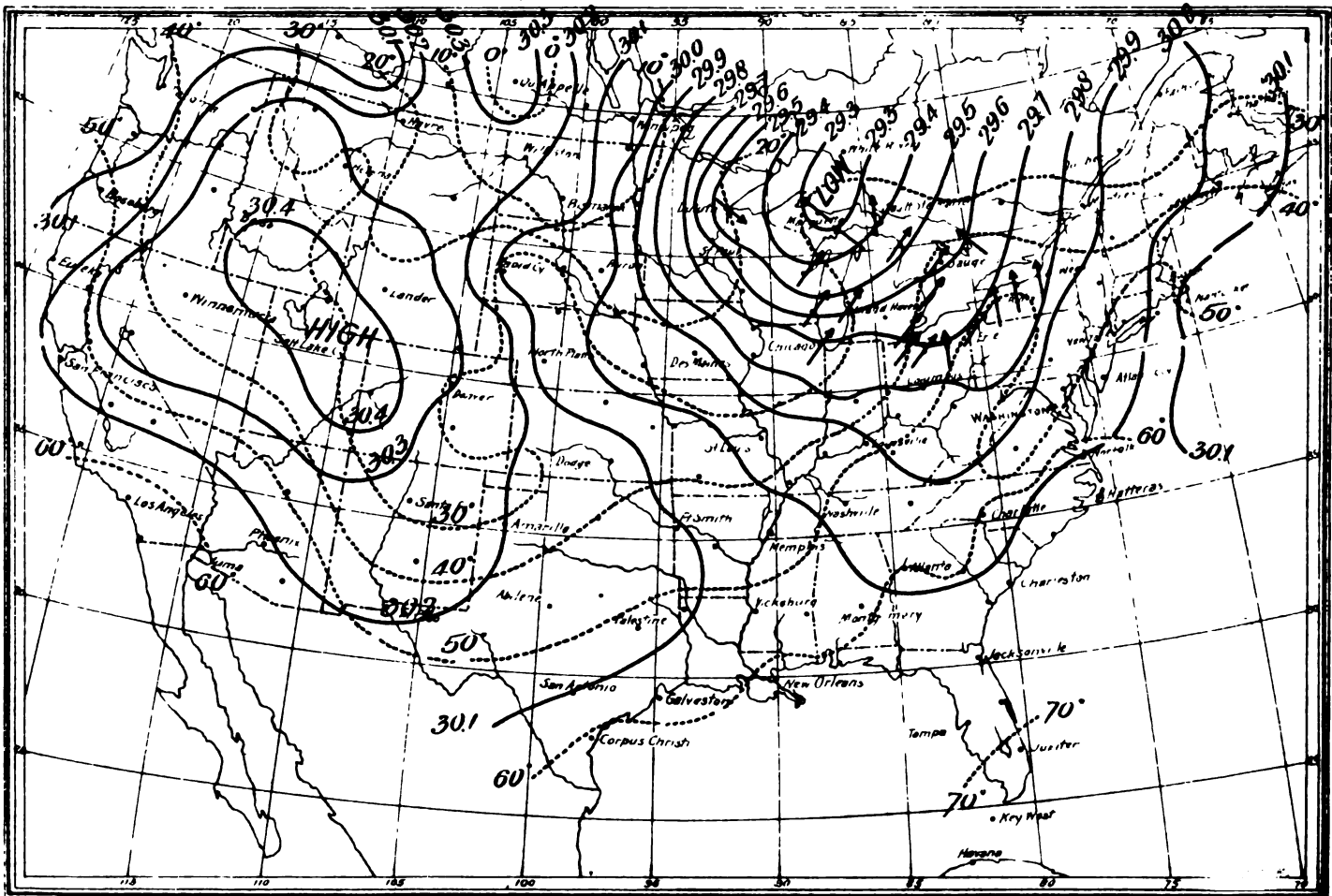


Chart D0000LXVIII

December 28, 1900—8 p. m.



W. B. No. 288.

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STORMS OF THE GREAT LAKES.

BY

E. B. GARRIOTT,

PROFESSOR OF METEOROLOGY.

Prepared under direction of WILLIS L. MOORE, Chief U. S. Weather Bureau.



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WEATHER BUREAU.
1903.

